

NEAL KUSHWAHA

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PROFILE

Mr. Kushwaha's background focuses on the IT infrastructure, IT security, physical datacenter design, power, cooling, business processes, and IT consolidation. He is looking to help organizations large and small make their data centres work for them. He has helped private and public sector organizations with their data centre space, power, and cooling challenges and left them with solid ITIL based business processes. He is experienced in making changes to active data centres and designing/constructing new ones. With all that, Neal also commands an IT technical background to understand IT infrastructure and applications (from storage to hosting).

SUMMARY OF QUALIFICATIONS

With over 19 years of experience in IT, Mr. Kushwaha has strong IT operational knowledge. He has successfully moved 30 data centres covering 3 continents. He was responsible for building the IT Operations team and business at the Bank of Canada where his data centre design and commissioning experience was put to the test and was recognized and commended by the advisor to the Governor. He has experience managing complete demolition-to-construction data centre projects managing the entire process of consolidation of IT services and equipment, the design, construction, cabling, and commissioning of a new data centre, and the move of IT hardware into the new space. Mr. Kushwaha was also a programme manager for the Nortel global data centre consolidation project that impacted data centres around the world over a period of almost 3 years. His most recent completed engagement was with Shared Services Canada where he was an advisor to ESDC's national data centre consolidation and rationalization project.

Mr. Kushwaha's experience doesn't stop there, he has managed a wide range of IT related projects with budgets as high as nearly \$30M, delivered on projects over \$1.0B, and reported to chiefs of organizations. He enjoys juggling the time, cost, scope and quality of any project. He has strong negotiation skills and enjoys delivering presentations to all levels of staff and management.

Mr. Kushwaha is often requested to advise and guide private and public organizations with their data centre challenges by reviewing their environment and educating their staff on topics such as data centre Tiers, Green IT, and LEED best practices. He recently organized DCAR2015 and delivered 5 sessions including topics including as Cyber Security and Resiliency, Datacenter Consolidation, and Datacenter Operations. Mr. Kushwaha holds 3 valid security clearances, is certified by the Uptime Institute, and is fully bilingual. Mr. Kushwaha is also an accomplished mountaineer and was the lead of the spring 2014 Lhotse/Everest team.

PROFESSIONAL DEVELOPMENT

- ✓ Accredited Data Centre Tier Specialist (2010) – Uptime Institute, Seattle WA
- ✓ New Data Center Designs and ISS Technology Update (2010) – HP, Houston TX
- ✓ Operationalizing Strategic Plans (2007) – Concordia University – John Molson School of Business
- ✓ Gartner Data Centre World Conference (2006) – London, UK
- ✓ ITIL V2 Foundation (2005) – IMP Solutions, Ottawa, ON
- ✓ COMPAQ ASE Training (1998) – Compaq Canada, Vancouver, BC
- ✓ Electrical Engineering (1992-1995) – University of Saskatchewan

INDUSTRY CERTIFICATIONS

- ✓ Uptime Institute Accredited Tier Specialist (Since 2010)
- ✓ ITIL Foundation (Since 2005)
- ✓ HP Accredited Systems Engineer HP ASE (Since 1999)
- ✓ HP Accredited Integration Specialist HP AIS (Since 1999)
- ✓ Microsoft Certified Systems Engineer + Internet MCSE+I (Since 1999)
- ✓ Microsoft Certified Systems Engineer MCSE (Since 1998)

COMMUNITY INVOLVEMENT

Organization: MS Society, member of the board

Date: April 2009 to present [15h per month]

Organization Background: Founded in 1948, the MS Society provides services to people with multiple sclerosis and their families and funds research to find the cause and cure for this disease.

Activities:

1. 2013-present: Mr. Kushwaha serves on the Board of the MS Society.
2. 2011-2012: Mr. Kushwaha assisted two fund raising climbers in their fundraising efforts and their personal training/conditioning to successfully summit Mt. Kilimanjaro. The MS Climb campaign of 2012 raised over \$30,000.
3. 2010-present: Mr. Kushwaha participated and helped organize the MS Society golf tournament called the "MS kilts fore a cure". He has played a pivotal role in turning a fledgling tournament into a smashing success raising over \$100,000 for just the last event. Recruiting teams, securing sponsorship and sitting on the planning committee, he has had an extremely positive influence on the work of the Ottawa chapter through his laudable efforts in growing the tournament. In fact he was responsible for recruiting over half the golfers on his own. He was awarded the MS Society's "Excellence in Leadership" award for 2012.
4. 2010: Mr. Kushwaha was requested by the MS Society as a guest speaker for the RONA MS Bike Tour to share the similarities between MS and mountaineering.
5. 2009: Mr. Kushwaha organized an expedition to Mount Rainier [the most glaciated peak in the lower 48 states] and participated in the End MS Campaign that collectively raised over \$60M. He traveled to the state of Washington and ascended Mount Rainier over the course of a few days.

Organization: Canadian Blood Services

Date: September 2012 to April 2013 [10h per month]

Organization Background: Canadian Blood Services offer a safe, secure, and cost-effective blood system. They operate within the larger health-care system of transfusion and transplantation medicine.

Activities:

1. Mr. Kushwaha was selected by the Canadian Blood Services [CBS] to provide (a) personal training to the 31 climbers, (b) guide a climb up Mt Washington, and (c) be the Canadian guide up Mt Kilimanjaro for a campaign [called "Climb for Cord"] that is projected to raise over \$750,000. He is once again involved in training various first time climbers across Canada and the United States for this campaign.

Organization: Ottawa Senators Franchise as a volunteer

Date: September 2012 to present [5h per month]

Organization Background: Founded in 1990, the Ottawa Senators Franchise is a professional ice hockey team that supports a variety of local business and organizations.

Activities:

1. Mr. Kushwaha was selected as an ambassador to the Ottawa Senators hockey club to help attract new season seat holders. Although the 2012-13 NHL hockey season didn't start as planned, the effort to help the club share its success with the people and businesses of Ottawa remains. Annually, there are two large events planned by the Mr. Kushwaha to help the Ottawa Senators gain a few more long-term customers.

PROJECT HISTORY

PROJECT	START DATE	END DATE	CLIENT NAME	ROLE
<u>17</u>	2000 Dec	Present	Impendo Inc.	CEO and Dir of Pro Services
<u>16</u>	2012 Sep	Present	Government of Canada [undisclosed at client request]	Project Advisor
<u>15</u>	2011 May	2012 Nov	Shared Services Canada [SSC]	Project Advisor
<u>14</u>	2011 Feb	2011 Jun	Canada Revenue Agency [CRA]	Project Executive
<u>13</u>	2009 Jun	2011 Mar	The Royal [Royal Ottawa Hospital]	Project Executive
<u>12</u>	2008 Mar	2009 May	Corel Corporation	Project Executive, Programme Manager
<u>11</u>	2005 Jul	2008 Feb	Bank of Canada	Project Executive, Programme Manager
<u>10</u>	2003 Sep	2005 Jun	R.E. Gilmore Investments	Programme Manager, Project Manager
<u>9</u>	2000 Dec	2003 Aug	Nortel Networks	Programme Manager, Project Manager
<u>8</u>	2000 Nov	2000 Nov	BitFlash Graphics Inc. [now a division of Quickoffice]	Project Manager
<u>7</u>	2000 Sep	2000 Oct	IQEQ Technology Inc. [defunct]	Project Manager
<u>6</u>	1999 Nov	2000 Aug	EDS Canada Ltd. [now HP Enterprise Services]	Project Manager
<u>5</u>	1999 May	1999 Oct	Saskatchewan Wheat Pool [now Viterra]	Project Manager
<u>4</u>	1997 Nov	1999 April	Western Business Machines	Project Manager
<u>3</u>	1997 Sep	1997 Oct	Deloitte & Touche	Project Manager
<u>2</u>	1997 Apr	1997 Aug	K&K Real Group of Companies	Project Manager
<u>1</u>	1997 Apr	1997 Aug	Cantel: Advanced 2000 Systems	Project Manager

PROJECT DETAILS

Project 17

Client: Impendo Inc.

Role: CEO and Dir of Pro Services

Date: 2000 Dec - Present

Client & Project Description

Impendo Solutions Inc. is a Canadian company with expertise in managing information technology related projects specifically related to the design, construction, IT consolidation, and demolition of data centres.

Role Description

- Responsible and accountable to maintain client satisfaction and attract new business;
- Responsible and accountable for the financial management of Impendo Solutions Inc.;
- Responsible and accountable for the human resource functions of Impendo Solutions Inc.;
- Responsible and accountable for building and maintaining business relationships with other 3rd party organizations in order to fulfill all the roles required for a particular project;
- Responsible and accountable for the management and/or oversight of all client projects.

Project 16

Client: Government of Canada [undisclosed at client request]

Role: Project Advisor

Date: 2012 Sep - Present

Client & Project Description

The undisclosed government of Canada department is one of Canada's key security and intelligence organizations, focussed on collecting foreign intelligence in support of the Government of Canada's priorities, and on helping protect the computer networks and information of greatest importance to Canada. The department operates under the Nation Defence Act.

Role Description

- Responsible to advise on data centre consolidation and guide on capacity assessments for national data centres;
- Responsible to design a layout of all the destination data centres;
- Responsible for the design of the chilled water cooling system and power distribution for unique IT systems;
- Responsible to meet with all the groups within the organization [stakeholders] and ensure their requirements are being managed for the newly constructed data centres;
- Responsible to liaise with other service providers and constructors in order to deliver a successful solution.
- Other project/program responsibilities included:
 - Jointly responsible for the project timeline and its activities;
 - Jointly responsible for managing risk, issue, and action logs for the project;
 - Jointly responsible for setting and managing the project budget, plans, schedules, resources, and milestones;
 - Jointly responsible for directing activities to planned deliverables, resolving issues, and managing risks;
- Project management tools used: MS Project and Project Server, MS Excel, MS Word, MS PowerPoint, MS Visio, Mindjet Mind Manager, AutoCAD, and several other client specific applications.

Project 15

Client: Project Execution at Shared Services Canada [SSC] and Employment and Social Development Canada [ESDC]

Role: Project Advisor

Date: 2011 May - 2012 Nov

Project Description

Employment and Social Development Canada [ESDC] helps Canadians move through their life's transitions – from families with children to seniors, from school to work, from one job to another, from unemployment to employment, from the workforce to retirement.

The purpose of the Data Centre Rationalization [DCR] project is to develop world-class datacenters for ESDC by streamlining complexity, optimizing the existing IT Infrastructure so as to deliver high quality data center services in the most efficient manner, to maximize the value of ESDC employee contributions, and pave the way for compelling work in the future. One of the primary objectives for the project is to consolidate its 5 datacenters across Canada into 2 datacenters.

On April 1, 2012, the project team was officially transferred to the Project Execution directorate within Shared Services Canada. At the time of the project, the department was officially recognized as Human Resources and Skills Development Canada [HRSDC].

Role Description

- Responsible to advise on data centre consolidation and guide on capacity assessments for the five national HRSDC data centres;
 - Responsible to advise and guide management and staff with the various methods of data centre consolidation, migration, and relocations;
 - Responsible to lead various workshops and meetings on data centre planning and capacity management with HRSDC IT staff;
 - Responsible to work with Shared Services Canada teams and share knowledge of data centre relocations and migrations;
 - Responsible to lead two working groups for IT capacity planning to better capture the current capacity of the IT infrastructure and future needs of facility infrastructure;
 - Responsible for being the authority on data centre consolidation, migrations, and relocations;
 - Responsible for a plan, schedule, governance model, and budget for all project activities;
- As a Project Advisor for the Data Centre Rationalization project, was mandated to deliver a national IM/IT data centre relocation and consolidation project;
 - A plan for relocation of all services and infrastructure from 5 primary data centres to 2 primary data centres;
 - Delivered planning and project management support, coaching and project advisory services, assisting with requirements definition, solution definitions, and high level scheduling activities;
 - Advised and counselled to the project authority on direction, quality of deliverables, compliance to objectives and audit requirements, and timeliness of work;
 - Assisted in the preparation of management reports, briefs, and presentations related to DCR;
 - Advised on the plan, schedule, and budget for all project activities;
- Responsible as a Project Advisor for the Data Centre Rationalization national project;
 - Advisor to the project director and project manager (as Project Executive) with the client stakeholders including the acting CIO, associate CIO and CTO, senior director generals, director generals, directors, managers, the project director, and project manager;
 - Project stakeholders: Chief Financial Officer Branch (CFOB), Treasury Board Investment Management Process, procurement, data centre facilities, director of Secure Channel project, director of Information & Communication Technology Refresh (ICTR) project, director of Application Modernization project (AMP), and director of Desktop Modernization project (DMP);
 - The DCR project consisted of the migration and relocation of services and equipment from 5 into 2 data centres to deliver services to Canadian citizens and HRSDC staff across Canada;
- Responsible to provide data centre consolidation, architectures, frameworks, strategies, roadmaps, design alternatives for HRSDC to meet their business and application requirements;
 - Reviewed and recommended methodologies such as data mirroring, leap-frog, and lift and shift;
 - Defined the need for other projects to be completed in parallel to make the overall solution successful;
 - Described and delivered a set of guiding principles along with issues, risks, and assumptions;
 - Delivered a project review at the CIO level;

- Responsible for documenting enterprise data centre asset management tools and processes, incorporating IT best practises for high level management;
 - Provided reporting on inventory from MS Excel using pivot tables and many sources of data;
 - Distributing the migration effort into events, windows, and groups;
- Responsible for analyzing power and HVAC mechanical designs in data centre environments, and making recommendations on options for increasing capacity/scalability, incorporating best practises;
 - Reviewed and forecasted a 5 year plan for power and cooling utilization in the 5 data centres;
 - Reviewed and recommended design changes for the readiness and modernization of the final two data centres;
 - Continually advise the data centre facility management teams across Canada on best practises, recommendations on managing rapid growth (possibly due to relocation of services and equipment), and the decommissioning of facility infrastructure due to the closing of data centres;
 - Advised, planned, and reviewed the economics of the relocation of facility equipment to the final two data centres;
- Responsible for Green IT best practises for data centre design/capacity growth while remaining fiscally responsible;
 - Responsible for following Green IT computing practise in the areas of product longevity (replacing components vs. entire systems), power management (high voltage power, 3 phase systems, highly efficient transformers), software & deployment optimization (application consolidation, virtualization), materials recycling (disposal of batteries, cooling refrigerant, computer systems, hard disk destruction), and telecommuting (VPN, VoIP);
- Accountable to the Director of the Data Centre Rationalization project;
- Other project/program responsibilities included:
 - Responsible for the project timeline and its activities;
 - Responsible for managing risk, issue, and action logs for the project;
 - Responsible for setting and managing the project budget, plans, schedules, resources, and milestones;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
- Project management tools used: MS Project and Project Server, MS Excel, MS Word, MS PowerPoint, MS Visio, Mindjet Mind Manager, MS SharePoint Server, Autodesk AutoCAD, Google Sketchup.

Project 14

Client: Canada Revenue Agency [CRA]

Role: Project Executive

Date: 2011 Feb - 2011 Jun

Project Description

The Canada Revenue Agency [CRA] administers the tax laws for the Government of Canada and for most provinces and territories. Once jointly operating with the Canadian Border Services Agency [CBSA] as Canada Customs and Revenue Agency [CCRA], now only the IT is jointly managed for both agencies.

The Data Centre Co-Location [DCCL] project is a joint initiative between the Bank of Canada, Public Works and Government Services Canada (PWGSC) and the Canada Revenue Agency [CRA] to procure datacenter services in a private sector owned and managed facility. The datacenter relocation project is distributed into three phases. Phase one of the project is to identify CRA's move requirements and develop a move strategy that will be used as a framework for the subsequent phases of the DCCL project. The objective of the project was to relocate one of the two primary datacenters to a dedicated section within the co-location facility.

Role Description

- Responsible to advise on data centre consolidation and guide on capacity assessments for one of the two primary CRA data centres;
 - Responsible to ensure management and staff better understood the various methods of data centre consolidation, migration, and relocations;
 - Responsible to lead various workshops and meetings on data centre planning and capacity management with CRA IT staff;

- Responsible to lead working groups for IT capacity planning to better capture the current capacity of the IT infrastructure and future needs of facility infrastructure;
- Responsible for being the authority on data centre consolidation and for driving the capacity plans to achieve a “match” capacity management strategy for IT infrastructure (servers, licenses, and application services) and a “lead” capacity management strategy for the environmental and core IT infrastructure (power, cooling, rack space, networking, and storage);
- Responsible for a plan, schedule, governance model, and budget for all project activities;
- As a Project Manager for the Data Centre Co-Location project, was mandated to deliver a national IM/IT data centre relocation and consolidation project;
 - A plan for relocation of all services and infrastructure from a primary data centre to a new acquisition centre;
 - A strategy for the migration and/or relocation of 2.5PB of shared storage, mainframes, midrange servers, distributed servers, and tape subsystems, appliances, network, and other data centre technology equipment (KVMs, media transceivers, local storage, local tape, etc.);
 - A strategic direction document (+200 pages with collateral and background information) for the migration and/or relocation of all technology equipment and services including but not limited to: mainframe, midrange, distributed, disk storage subsystems, tape libraries, data networks, storage area networks, secure channel, inter-data centre backups, IT operations, citizens of Canada external facing applications, and CRA/CBSA internal applications;
 - An abridged release (30 pages) of the strategic document for executive review including glossary of terms and overall migration methodologies;
 - Responsible for a plan, schedule, governance model, and budget for all project activities;
- Responsible as a Project Manager for the Data Centre Co-Location national project;
 - Advisor to the project director and project manager with the client stakeholders including the Assistant Commissioner and CIO, deputy assistant commissioners, director generals, the project director, and project manager;
 - Project stakeholders: CRA Board of Management, CRA Agency Management Committee, Public Affairs branch, CRA Corporate Strategies & Business Development branch, Legal Services Branch, Finance & Administration Branch, 7 committees of the Information Technology Branch, and Canadian Border Services Agency (CBSA);
 - The DCCL project consisted of the strategy, detailed plan, and execution of the relocation of one of the primary data centres to a new co-location;
- Responsible to provide data centre consolidation, architectures, frameworks, strategies, roadmaps, design alternatives for CRA to meet their business and application requirements;
 - Reviewed and recommended methodologies such as data mirroring, leap-frog, and lift and shift;
 - Outlined 12 other projects to be completed in parallel to make the overall solution successful;
 - Interviewed all technology teams including applications of CRA to ensure the developed solution met the requirements of the entire agency;
 - Split the relocation and migration into move events, windows, and groups to make it manageable;
 - Acquired and reviewed the two primary data centres inventory including facility inventory in line item detail;
 - Delivered a resource plan for the future phases and financial profile including CRA and 3rd party resources, relocation and transportation fees, certification, licensing, and contingency;
 - Delivered a schedule and work breakdown structure for the remaining two phases of the project;
 - Described and delivered a set of guiding principles along with issues, risks, and assumptions;
 - A strategic direction document (+200 pages with collateral and background information) for the migration and/or relocation of all technology equipment and services including but not limited to: mainframe, midrange, distributed, disk storage subsystems, tape libraries, secure channel, inter-data centre backups, IT operations, citizens of Canada external facing applications, and CRA internal applications;
 - An abridged release (30 pages) of the strategic document for executive review including glossary of terms and overall migration methodologies;
- Responsible for documenting enterprise data centre asset management tools and processes, incorporating IT best practises for high level management;

- Gap identification of the existing manual inventory of the data centre to be relocated (no CMDB at the time of engagement);
- Reviews of the detail inventory with all information technology branch technology leads (CS4 and managers);
- Responsible for the breakdown of assets into device types and more importantly application affinity groups where possible (using MS Excel and pivot tables);
- Responsible for the breakdown of assets into move events, windows and groups for the relocation to the new data centre;
- Accountable to the Director of the Data Centre Co-Location project;
- Other project/program responsibilities included:
 - Responsible for the project timeline and its activities;
 - Responsible for managing risk, issue, and action logs for the project;
 - Responsible for setting the project budget, plans, schedules, resources, and milestones;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
- Project management tools used: MS Project, MS Excel, MS Word, MS PowerPoint, MS Visio, Mindjet Mind Manager, MS SharePoint Server, Autodesk AutoCAD.

Project 13

Client: The Royal [Royal Ottawa Hospital]

Role: Project Executive

Date: 2009 Jun - 2011 Mar

Project Description

The Royal (also known as the Royal Ottawa Hospital or ROH) is a mental health institute that has 15 buildings in 5 locations located across Ottawa and Brockville. The ROH services are similar to those of a regular hospital without emergency services. They service Corrections Ontario for criminal proceedings along with in and out patients in a secure treatment facility. The ROH IM/IT department is responsible for all of the technology services used by all employees [remote and local], research staff and students [from the University of Ottawa], contractors, and physicians. This totals to over 1800 active user accounts.

The program consisted of the following two national projects:

1. Brockville Relocation project: The consolidation of general IT services and relocation of an existing data centre (in a building to be vacated) into a newly designed data centre in a level two secure jail facility. This includes new fully redundant power and in-row cooling systems with racks to fit current and future needs of the ROH along with the underground boring with main and sub conduits of new fibre (22 connections along different paths) and copper runs (including telephony DID, trunk lines, and house pairs) requiring new manholes across the campus. The relocation, performed in stages, covered the introduction of a new core to connect the new fibre runs, the relocation of the primary PBX system with the distribution of various nodes to other locations, the relocation of consolidated servers/storage and services, the cabling of various buildings for the relocation of wards/staff and patients for both data and telephony use. The demolition of the old data centre which will become obsolete after the relocation;
2. Consolidation & Microsoft Migration project: The consolidation and migration of services across the 5 locations from a Novell to a Microsoft infrastructure environment. This includes new directory services, collaboration services (Exchange 2007), file and print services, monitoring and asset management tools (Microsoft System Center and Operations Manager), and the migration of all corporate desktops from Novell with eDirectory/iPrint/GroupWise/ZenWorks client to a Microsoft Active Directory client with Outlook and Symantec Evault clients.

Role Description

- Responsible to advise on data centre consolidation and guide on capacity assessments for the ROH data centres;
 - Responsible to ensure steering committee and ROH leadership better understand the need for proper capacity planning;

- Responsible to lead a workshop on data centre consolidation planning and capacity management with ROH IT and facility staff;
- Responsible to lead two working groups for facility and IT capacity planning to better capture the current capacity of the facility and IT infrastructures;
- Responsible for being the authority on data centre consolidation and for driving the capacity plans to achieve a “match” capacity management strategy for IT infrastructure (servers, licenses, and application services) and a “lead” capacity management strategy for the environmental and core IT infrastructure (power, cooling, rack space, networking, and storage);
- Responsible for a plan, schedule, governance model, and budget for all project activities;
- As a Project Executive for the Brockville Relocation project, was mandated to deliver a national IM/IT data centre relocation and consolidation project;
 - The design of a new data centre including architectural and engineering (electrical and mechanical) drawings via a 3rd party architectural and engineering firm;
 - The construction of a new data centre including a fully redundant power system and fully redundant cooling system in the forensic treatment unit facility (secure jail) in Brockville with a minimum lifespan of 15 years;
 - The construction (boring with new manholes) of single paths off and on campus of fibre and copper cabling conduits converging at the new data centre;
 - A new core switching solution for the new data centre (minimum lifespan of 7 years) to be connected to the existing facility while relocating servers and services;
 - The relocation of a PBX system with the distribution of various nodes to other locations;
 - Inter-rack data centre cabling for both fibre and copper communications (data and storage);
 - A consolidated set of IT infrastructure to be relocated from the existing data centres into the new facility;
 - The demolition of the old data centre which is no longer required upon relocation including the disconnection and removal of unused fibre and copper lines to the data centre;
 - The purchase and disposal of building materials, IT equipment, and cabling following environmental best practises;
 - The planning of ward/staff moves for the purpose of data and telephony cabling of various building workspaces for staff and patient readiness;
 - Responsible for a plan, schedule, governance model, and budget for all project activities;
- As a Project Executive for the Microsoft Migration project, was mandated to deliver a national IM/IT data centre consolidation project;
 - A consolidation of core services and the migration from Novell with GroupWise to Microsoft Active Directory with Exchange 2007 across all 5 locations consisting of 15 buildings;
 - The migration of all Novell users and groups to Microsoft Active Directory along with all GroupWise mailboxes to Microsoft Exchange 2007 and integration with Blackberry Enterprise Server;
 - The consolidation and migration of all file servers and print queues across the ROH;
 - The migration of all user desktops from Novell eDirectory, GroupWise, Zenworks, and iPrint clients to Microsoft Active Directory, Outlook, and Symantec Evault clients;
 - Implementation of Microsoft System Center Operations Manager (SCOM) 2007, MS Windows Server Update Services (WSUS) 3.0, MS SQL Server 2008, MS Internet Authentication Service (IAS), MS Internet Security & Acceleration Server (ISA), MS Windows File & Print servers (2008 platform), Blackberry Enterprise server, Symantec Evault server, and VMWare vSphere 4 in a primarily virtualized environment across multiple data centres;
 - The migration of custom applications using various methods of authentication and standardize them to authenticate users with Microsoft Active Directory;
 - All migrations (servers and desktops) were to be performed in an automated fashion;
 - Responsible for a plan, schedule, governance model, and budget for all project activities;
- Responsible as a Project Executive and a member of the program steering committee for the two national projects (1) Brockville Relocation project and (2) Consolidation & Microsoft Migration project under one national program (total value > \$7M CAD);
 - Advisor to the steering committee (as Project Executive) with the Client stakeholders including the IT Director, Facilities director, VP of Finance, Procurement director, Network Services manager, Service Desk manager, and Applications manager;

- Project stakeholders: ROHCG Information Technology, ROHCG Facilities, Ontario Realty Corp (property owners), and TELUS (service providers for all WAN, dark fibre, and telephony connectivity);
- The Brockville Relocation project consisted of the designs and construction of a new data centre, consolidation of services across all ROH data centres, and the relocation of services in to a new data centre;
- Responsible to provide data centre consolidation, architectures, frameworks, strategies, roadmaps, design alternatives for the ROH to meet their business and application requirements;
 - Employed strategies such as Lead, Lag, and Match for capacity planning upon gathering a current capacity baseline;
 - Delivered a roadmap to follow a set of procedures which allow for a regular review of the consolidation capability and capacity available to allow for on-demand growth of business and applications;
 - Employed architectures such as virtualization and the combination of workloads like email services, account management and authority, databases, and web server application front ends to deliver lower operations and maintenance costs for both IT and facilities;
 - Provided design alternatives on power and cooling for increased reliability in terms of component or system failure (fault tolerance vs. redundancy), ease of facility maintenance or replacement with minimal or zero IT infrastructure downtime using fully redundant systems, rapid adjustment to capacity using Lead capacity planning practises, and low costs for operations and maintenance by achieving a Power Usage Effectiveness (PUE) ratio lower than 1.7 to meet both business and application requirements;
 - Provided rack layout design alternatives for the entire room with a single network core design, dual power distribution to each rack, and in-row cooling;
- Responsible for providing facilities management services for all ROH data centres;
 - Put in place operating level agreements between IT and facilities for all data centre equipment such as UPS, power distribution units, transformers, transfer switches, generators, power panels, pumps, in-row cooling units, condensing units, and fire suppression systems;
 - Planned out the schedule of maintenance for all data centre equipment;
 - Responsible for drawing up the budget for the data centres facility operations;
 - Planned for lead capacity (or more than required) on power feeds, generator systems, and cooling systems;
 - Planned for slightly higher than match capacity on UPS systems with the ability to rapidly add capacity when growth is planned (UPS frame with expansion capability);
 - Assisted in the planning and execution of scheduled hydro maintenance as they affected all data centres;
 - Responsible for guidance and direction on both common and best practises for the maintenance and design of the new data centre for UPS, power distribution units, generator systems, transfer switches, in room cooling systems, refrigerant lines, condensing units, and fire suppression systems;
 - Brought forward the concept of IT and facilities management to plan together for better communication between the two functions and for joint use of IT change management – was responsible to chair meetings and plan for handover to ROH management;
 - Reviewed all data centre facility management procedures and recommended changes for efficiency and completeness;
 - Introduced and carried forward the idea of a cyclical review of capacity with trend analysis using simple calculations and regular review of PUE;
- Responsible for documenting enterprise data centre asset management tools and processes, incorporating IT best practises for high level management;
 - Responsible for employing the use of asset management tools such as Numara Track-It and Microsoft System Center Operations Manager (SCOM) to document and manage data centre assets with ITIL based asset management processes and procedures;
 - Responsible for drafting a process and various procedures for the purpose of tracking data centre assets from procurement to disposal following ITIL best practises;
 - Responsible for ensuring the documentation of existing and new data centre assets;
 - Responsible for adding facility equipment and agreements to data centre assets;
 - Responsible for weekly reporting of the consolidation effort in steering committee meetings;

- Responsible for the weekly reporting of the relocation effort of servers in steering committee meetings;
- Responsible for analyzing power and HVAC mechanical designs in data centre environments, and making recommendations on options for increasing capacity/scalability, incorporating best practises;
- Responsible for regular reviews and recommendations of electrical and mechanical engineering drawings for the new data centre to be located in a secure facility including single line and 5 line diagrams for electrical systems and refrigerant pipe diagrams for mechanical systems;
- Recommended various design changes for additional redundancy and rapid growth in power systems (dual UPS configuration with dual power distribution units and dual rack-power distribution units) and cooling systems (multiple units with multiple condensing units vs. single CRAC unit);
- Made key recommendations in power systems to accommodate future growth such as larger source power distribution from multiple sources across different panels;
- Responsible for regular reviews of cabling and boring paths for public and private fibre runs for the Internet, health Ontario private network, and ROH private network along with copper runs for data and telephony including DID, trunk lines, and house pairs for patients;
- Responsible for the design and reviews of the data centre rack-to-rack cabling plan including fibre and copper patch panels in each rack for the use on common networks, management networks, backup networks, IP KVM network, and storage allowing for rapid deployment of servers upon business demand;
- Responsible for Green IT best practises for data centre design/capacity growth while remaining fiscally responsible;
 - Responsible for the baseline of current facility systems and putting in place a 360/365 process for regular review/evaluation;
 - Responsible for following Green IT computing practise in the areas of product longevity (replacing components vs. entire systems), power management (high voltage power, 3 phase systems, highly efficient transformers), software & deployment optimization (application consolidation, virtualization), materials recycling (disposal of batteries, computer systems, hard disk destruction), and telecommuting (VPN, VoIP);
 - Responsible to ensure the achievement of a PUE metric of 1.7 or less;
- Accountable to the Director of Information Technology and VP of Finance;
- Other project/program responsibilities included:
 - Responsible for the project timeline and its activities;
 - Responsible for managing risk, issue, and action logs for the project;
 - Responsible for setting and managing the project budget, plans, schedules, resources, and milestones;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
- Project management tools used: MS Project and Project Server, MS Excel, MS Word, MS PowerPoint, MS Visio, Mindjet Mind Manager, MS SharePoint Server, Autodesk AutoCAD, Google Sketch Up.

Project 12

Client: Corel Corporation

Role: Project Executive, Programme Manager

Date: 2008 Mar - 2009 May

Project Description

Corel is one of the world's top software companies with more than 100 million active users in over 75 countries. Their brands of software can easily be recognized (CorelDraw, Paint Shop Pro, Corel Painter, WinDVD, WinZip to name a few). Corel is spread across the globe and has offices in Canada, US, Taiwan, UK, Australia, Germany, Beijing, and Shanghai. They host an internal customer support service that provides end-user support for all their products.

The "Corel's Carling Construction and Consolidation (C4) national program consisted of the following 5 projects across multiple locations and sites (5+):

1. Corel Construction project (national project): The design, construction, relocation, and demolition of a primary global data centre to consolidate services to and from Ottawa, Mountain View, Taipei, and Toronto and to design and construct IM/IT office space for Ottawa staff near the new data centre. The relocation includes

consolidated servers, storage, and new core networking into the new data centre. It also includes the fibre and copper cabling required to operate both data centres temporarily and then ensure all required runs are terminating into the new data centre to allow for demolition of the existing data centre;

2. Carling Network Refresh project: The complete design and refresh of the network environment for the Carling site from the core to the data closets and all demarcations;
3. Carling Telephony Refresh project: The re-design and replacement of the Carling telephony systems including the call centre system (ACD) and the general office system to a voice over IP solution;
4. Corel Consolidation project (national project): The consolidation of all IT equipment and services across the entire corporation including file servers, web servers, application servers, databases, business specific build and code repository servers, and core IT infrastructure servers;
5. Corel Q9 Migration project (Phase 2 national project): The second phase of the consolidation and relocation of critical business and external facing services to a managed data centre.

Role Description

- Responsible to advise on data centre consolidation and guide on capacity assessments for the Corel data centres;
 - Responsible to lead the entire effort on data centre consolidation planning and capacity management with Corel IT staff and consultants for all servers, networking, and storage in the Corel data centres;
 - Responsible to lead a working groups for facility capacity planning to capture the current capacity of the facility;
 - Solely responsible for extrapolating facility requirements upon achieving all goals of the consolidation project in order to construct a new data centre while the IT consolidation effort continues;
 - Responsible for the use of standard deviation to calculate trending storage requirements based on historical data;
 - Responsible for training IT and facility services on capacity planning practises of lead, lag and match;
- As a Project Executive for the C4 program including the Corel Construction project, was mandated to deliver a national IM/IT data centre relocation and consolidation project;
 - The planning and design of a new data centre including architectural and engineering drawings (electrical and mechanical) ready for tender via two 3rd party firms (1) for architecture and the second (2) for engineering;
 - Ensure Manulife Financial was kept current with the drawings and their engineering team reviewed and either approved or recommended changes to the various design phases;
 - Lead the trades for the construction of a new data centre including a fully redundant power system and non-redundant cooling system in the head office building of Corel Corporation located in Ottawa with a minimum lifespan of 10 years;
 - The construction of new conduits from the main demarcation room in the main building to the new data centre covering both fibre and copper cabling;
 - A new core switching solution for the new data centre to be connected to the existing facility while relocating servers and services;
 - The relocation of two PBX systems, (1) for general calls to the entire corporation routed on voice over IP to other sites and (2) for a call centre environment offering support services to existing Corel customers and sales for a \$2M CAD revenue stream per annum;
 - Inter-rack data centre cabling for both fibre and copper communications (data and storage);
 - A consolidated set of IT infrastructure to be relocated from the existing data centres into the new facility with the majority coming from the old Carling data centre;
 - The demolition of two old data centres which are no longer required upon relocation including the disconnection and removal of unused fibre and copper lines to the data centre, the demolition of a chilled water plant, and the removal of a pre-action fire suppression system;
 - The removal of out of service copper runs for both telephony and data occupying space in riser conduits for several years;
 - The purchase and disposal of building materials, IT equipment, and cabling following environmental best practises;

- The planning of new Corel IT staff office space with architectural and engineering (electrical and mechanical) drawings – Construction of office space to follow upon completion of data centre and is not part of the mandate;
- Responsible for a plan, schedule, governance model, and budget for all project activities;
- As a Project Executive for the C4 program including the Corel Consolidation project, was mandated to deliver a national IM/IT consolidation project;
 - The consolidation of all IT services across the corporation covering core IT infrastructure (authentication, storage, print services, etc.), several Corel software development environments, and dual and multi-tier data driven web applications including financial applications offering consolidation opportunity onto several clustered database environments with clustered middle tier and clustered web front ends;
 - The additional consolidation of IT equipment located in the primary old data centre into the new facility;
 - The transition of data centre support services to Taipei Taiwan to meet the service levels set out by the Canadian user community;
 - The decommissioning of two data centres in the Ottawa building upon completion of the migrations and relocations;
 - Responsible for a plan, schedule, governance model, and budget for all project activities;
- Responsible as a Project Executive and a member of the program steering committee C4 national program;
 - Member of the steering committee (as Project Executive) with the Client stakeholders including the Chief of IT, Chief of Research and Development, Senior VP of Legal, Chief of Facilities, and an Executive from Manulife Financial;
 - Project stakeholders: Corel Global Information Technology, Corel Global Research & Development, Corel Facilities, and Manulife Financial (property owners);
 - Corel Construction project (national project): The design, construction, relocation, and demolition of a primary global data centre to consolidate services to and from Ottawa, Mountain View, Taipei, and Toronto and to design and construct IM/IT office space for Ottawa staff near the new data centre. The relocation includes consolidated servers, storage, and new core networking into the new data centre. It also includes the fibre and copper cabling required to operate both data centres temporarily and then ensure all required runs are terminating into the new data centre to allow for demolition of two existing data centres, a chilled water plant, and a pre-action fire suppression system;
 - Corel Consolidation project (national project): The consolidation of all IT equipment and services across the entire corporation including file servers, web servers, application servers, databases, business specific build and code repository servers, and core IT infrastructure servers. The putting in place of proper operational procedures and SLA/OLAs;
 - Corel Q9 Migration project (Phase 2 national project): The second phase of the consolidation and relocation of critical business and external facing services to a managed data centre;
- Responsible to provide data centre consolidation, architectures, frameworks, strategies, roadmaps, design alternatives for Corel to meet their business and application requirements;
 - Provided data centre consolidation plan to close and demolish two data centres and re-use the space as reclaimed office space and save on operational costs;
 - Provided data centre consolidation plan to consolidate services to and from other global data centre sites in Mountain View, Toronto, and Taipei to ensure corporate systems are well balanced across the globe and client facing applications are better available with the use of a collocation site;
 - Employed Lead and Match capacity planning strategies to keep costs low and still provide opportunity for growth;
 - Delivered a roadmap to follow a schedule of future consolidation efforts along with a 1:1 server add and decommissioning concept to ensure the data centres do not grow at an uncontrollable rate;
 - Employed architectures such as virtualization and the combination of workloads like account management, storage or file services, print services, databases, business logic middle tiers, and web server application front ends to deliver lower operations and maintenance costs for both IT and facilities;
 - Provided design alternatives on power and cooling for minimum operational and capital costs using ideas such as overhead cooling, free air cooling, and redundant trailer generator systems achieving a Power Usage Effectiveness (PUE) ratio of 1.5 (average over a year) to meet both the business and application requirements;

- Provided rack layout design alternatives for the entire room with a dual core network design, dual power distribution to each rack, and overhead cooling;
- Responsible for providing facilities management services for Carling data centres;
 - Responsible to mentor and work side by side with the Carling facility manager to ensure data centre operations were well understood and managed;
 - Co-responsible for the operations and maintenance of chilled water plant which fed 3 data centres of cooling units and heat pumps;
 - Co-responsible for the operations and maintenance of a pre-action fire suppression system;
 - Responsible for transfer of knowledge to the existing facilities manager and IT staff on new data centre facilities management tasks such as filter changes in cooling units, glycol temperature monitoring, APC power systems monitoring, APC temperature and humidity monitoring of cold and hot aisles, and best practises for measuring PUE;
 - Co-responsible to interface with Manulife Financial for facility maintenance schedules and activities;
 - Responsible for chilled water shutdown planning and integration with Corel IT services for load shedding to decrease cooling demands (no longer required with new data centre);
 - Responsible for hydro vault shutdown planning and integration with Corel IT services for planned data centre shutdown (no longer required with new data centre);
 - Responsible for drawing up the budget for the data centres facility operations;
 - Planned for lead capacity (or more than required) on power feeds, UPS systems, generator systems, and cooling systems;
 - Responsible for guidance and direction on both common and best practises for the maintenance and design of the new data centre for UPS, power distribution units, generator systems, transfer switches, in room cooling systems, refrigerant lines, condensing units, and fire suppression systems;
 - Brought forward the concept of IT and facilities management to plan together for better communication between the two functions and championed the idea that IT and facilities should be managed under one chief (which is now the case);
- Responsible for documenting enterprise data centre asset management tools and processes, incorporating IT best practises for high level management;
 - Responsible for employing the use of asset management tools such as Bassets Fixed Asset System and Microsoft System Center Operations Manager (SCOM) to document and manage data centre assets with ITIL based asset management processes and procedures;
 - Responsible for ensuring the documentation of existing and new data centre assets;
 - Responsible for adding facility equipment and agreements to data centre assets;
 - Responsible for bi-weekly reporting of the consolidation effort in steering committee meetings using Microsoft Excel and PowerPoint slides;
 - Responsible for the weekly reporting of the relocation effort of servers in steering committee meetings (increased frequency of meetings during relocation execution);
- Responsible for analyzing power and HVAC mechanical designs in data centre environments, and making recommendations on options for increasing capacity/scalability, incorporating best practises;
 - Responsible for regular internal reviews and recommendations of electrical and mechanical engineering drawings for the new data including single line and 5 line diagrams for electrical systems and refrigerant pipe diagrams for mechanical systems;
 - Recommended various design changes to allow for rapid growth in power systems (dual power distribution units and dual rack-power distribution units) and cooling systems (multiple units can be easily added to neighbouring room);
 - Made key recommendations in power systems to accommodate transfer switches and full maintenance bypass of UPS systems along with a meter on the main feeds to the data centre for charge back from Manulife Financial;
 - Responsible for the design and reviews of the data centre rack-to-rack cabling plan including fibre and copper patch panels in each rack for the use on both core switches, management network, IP KVM network, and storage allowing for rapid deployment of servers upon business demand;
- Responsible for Green IT best practises for data centre design/capacity growth while remaining fiscally responsible;

- Responsible for the baseline of current facility systems and putting in place a process for regular review/evaluation with the help of APC software and manual visits of facility equipment;
- Responsible to adhere to Manulife's strongly suggested green building program, similar to the Canadian Green Building Council's Leadership in Energy and Environmental Design (LEED) in the area of water efficiency, energy efficiency, and materials selection;
- Responsible for following Green IT computing practise in the areas of product longevity for new infrastructure (replacing components vs. entire systems), power management (high voltage power, 3 phase systems), software & deployment optimization (application consolidation, virtualization), materials recycling (disposal of batteries, chilled water disposal, chilled water plant demolition, copper water piping, cooling ducts, copper and fibre cabling, computer systems, hard disk destruction), and telecommuting (VoIP);
- Responsible to ensure the achievement of a low PUE metric – successfully achieved less than 1.5 (lower when using free air cooling);
- Accountable to the Chief of R&D/IT and Senior VP of Legal (both also accountable for facilities at various times throughout the project);
- Other project/program responsibilities included;
 - Responsible for RFPs and managing RFP and tender processes;
 - Responsible for the overall programme timeline and its activities;
 - Responsible for managing risk, issue, and action logs of the programme;
 - Responsible for setting and managing the programme budget, plans, schedules, resources, and milestones;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
 - Responsible for developing and delivering technical training on data centre operations management, incident management, problem management, and change management to Corel IT and facility teams;
 - Responsible for developing and delivering a variety of technical and non-technical presentations to the Corel IT and facility teams and management including data centre migration methodology and plan, network refresh high level plan, telephony refresh high level plans, consolidation objectives and plan, Q9 migration phase 2 objectives and plan, overall programme and project direction, and regular programme and project status;
- Project management tools used: MS Project, MS Excel, MS Word, MS PowerPoint, MS Visio, Mindjet Mind Manager, MS SharePoint Server, Autodesk AutoCAD and Inventor, Google Sketch Up.

Project 11

Client: Bank of Canada

Role: Project Executive, Programme Manager

Date: 2005 Jul - 2008 Feb

Project Description

The Bank of Canada is the nation's central bank located in Ottawa with 11 sites across the country. They are responsible for Canada's monetary policy, bank notes, financial system, and funds management. Their principal role, as defined in the Bank of Canada Act, is "to promote the economic and financial welfare of Canada." The Bank is a crown corporation and not a government department. It conducts its activities with considerable independence compared with most other federal institutions.

The High Availability national programme consisted of many projects of which Mr. Kushwaha was involved with six:

1. High Availability Deployment Project (HADP): national IT consolidated infrastructure and software deployment project affecting the Canadian financial system and funds management;
2. Data Centre High Availability Project (DCHAP): Remodelling of the Bank of Canada head office active data centre based on the findings from the Bank of Canada Computing Environment Evolution project to accommodate highly available banking services along with the relocation and closing of the Funds Management data centre;

3. Establishment of IM/IT Operations at the Bank of Canada project: The assessment, recommendation, and implementation of an IM/IT Operations function at the Bank of Canada including the writing of business processes, hiring of staff, and integration into the Bank of Canada IT services delivery model;
4. Bank of Canada Computing Environment Evolution (BOCCEE) project: The delivery of a complete assessment of the Bank of Canada's computing environment including 3 data centres (primary, secondary, and funds management), the idea of high availability services, the simplification of the data centre footprint by consolidating one or more data centres, the use of Green IT best practices, and the identification of gaps to deliver the organization's future needs;
5. Integrated Systems Monitoring (ISM) project: The assessment, recommendation, consolidation, and implementation of a new integrated monitoring system for the Bank of Canada production and pre-production systems covering all IT infrastructure, IT custom applications, WAN links, dark fibre, and facilities of all data centres;
6. NAS/SAN Implementation project: Based on recommendations from the Continuity of Operations Project recommendations, this project covered the assessment, consolidation, and implementation of a NAS and SAN solution for all Bank of Canada production and pre-production systems. The project also included renewal of enterprise wide backup solution.

Role Description

- Responsible to advise on data centre consolidation and guide on capacity assessments for the Bank of Canada data centres;
 - Responsible to advise the Bank staff and management on the consolidation of the Funds Management data centre (FMD) into the primary Bank of Canada data centre;
 - Responsible to lead the Bank of Canada Computing Environment Evolution project as the chair of the steering committee and champion the capacity assessments being performed by Bank staff;
 - Responsible to co-write and review the Bank of Canada Computing Environment Evolution paper which describes the direction for data centre consolidation and the results of the capacity assessments performed;
 - Responsible to calculate the PUE for all the data centres and recommend solutions to lower the power consumption of the primary data centre as it was higher than 2.5;
 - Responsible to draft an assessment document for the Integrated Systems Monitoring project covering the need to consolidate all the different monitoring tools into fewer larger more encompassing tools to minimize the operations costs and risks of overlooking certain traps due to the large number of tools;
 - Responsible to draft an assessment document for the NAS/SAN Implementation project covering the need of a unified storage solution which would consolidate storage systems across the various data centres and offer a total storage capacity assessment to gauge the quantity of storage to purchase vs. allocate;
- As a Project Executive for the Data Centre High Availability Project (DCHAP), was mandated to deliver a national IM/IT data centre relocation and consolidation project;
 - The relocation and consolidation of the Funds Management data centre and the demolition of the space to be reused as general office space;
 - The planning, design, and construction of a data centre inside an existing data centre to host high availability systems;
 - The remodelling of the active primary data centre to aid in better cooling by removing solid walls and replacing them with secure wire mesh walls;
 - The design and construction of a near fully redundant chilled water plant including pumps and cooling towers (except chilled water pipes inside the data centre) to feed the new High Availability cooling units and existing cooling units in the primary data centre;
 - The design and construction of a fully redundant power distribution system from generators, automatic transfer switches, transformers, UPS units, power distribution units, to rack based power distribution units;
 - The reclamation of data centre space which was used as lab space by the Network Support team;
 - The design and construction of additional lab space to relocate labs across the 3 buildings in Ottawa into one unified space;
- As a Project Executive for the High Availability Deployment Project (HADP), was mandated to deliver a national IM/IT consolidation project;

- The consolidation and replacement of IT infrastructure to operate a new funds management system for the Canadian banking system from mainframe onto a Sun Java platform;
- The consolidation of the banking system from the Toronto co-located data centre into the Bank of Canada managed data centres at two different sites;
- The implementation of a dark fibre communication between the two sites using dense wave division multiplexing (DWDM);
- The implementation of a dual redundant core network between both sites;
- The implementation of a dual redundant IT server, storage, and backup infrastructure which is self sustained at each site;
- As a Project Executive for the Bank of Canada Computing Environment Evolution (BOCCEE) project, was mandated to deliver a national IM/IT consolidation project;
 - The study and recommendation to consolidate and simplify the Bank of Canada computing environment and offer a solution for delivering High Availability software systems to support the Canadian economy;
 - One of the results of the study was to consolidate and relocate the Funds Management data centre into the primary data centre at the Bank of Canada;
 - The study also pointed to various other quick wins to increase operational efficiency in the data centre along with hard to achieve but necessary to complete efficiencies;
 - The recommendations also included various Green IT recommendations around power management (UPS systems, generator systems, IT equipment power supplies) and materials recycling (batteries, computer systems disposal, hard disk destruction);
- As a Project Executive for the Bank Integrated Systems Monitoring (ISM) project, was mandated to deliver a national IM/IT consolidation project;
 - The project delivered an assessment of the current monitoring systems including building maintenance systems;
 - The result was a consolidation of a large group of monitoring software components into a small set of new integrated monitoring system for the Bank of Canada production and pre-production systems covering all IT infrastructure, IT custom applications, WAN links, dark fibre, and facilities of all data centres;
- As a Project Executive for the NAS/SAN Implementation project, was mandated to deliver a national IM/IT consolidation project:
 - The project covered the assessment, consolidation, and implementation of a NAS and SAN solution for all Bank of Canada production and pre-production systems;
 - The project also included renewal of enterprise wide backup solution;
- Responsible as a Project Executive and a member of the various project steering committees of national High Availability program;
 - Member of the steering committee (as Project Executive) for the High Availability Deployment Project (HADP), Data Centre High Availability Project (DCHAP), Establishment of IT Operations at the Bank of Canada project, Bank of Canada Computing Environment Evolution (BOCCEE) project, Integrated Systems Monitoring (ISM) project, and NAS/SAN Implementation project – all project were under the High Availability program;
 - Project stakeholders: Bank of Canada Information Technology Services, Bank of Canada Facilities and Security Services, Bank of Canada Banking Services, Bank of Canada Funds Management, Bank of Canada Continuity of Operations, Bank of Canada Procurement, Bank of Canada Human Resources, and IBM Canada (for the High Availability Deployment Project only);
 - High Availability Deployment Project (HADP national project): national IT consolidated infrastructure and software deployment project affecting the Canadian financial system and funds management;
 - Data Centre High Availability Project (DCHAP national project): Remodelling of the Bank of Canada head office active data centre based on the findings from the Bank of Canada Computing Environment Evolution project to accommodate highly available banking services along with the relocation and closing of the Funds Management data centre;
 - Establishment of IM/IT Operations at the Bank of Canada project: The assessment, recommendation, and implementation of an IM/IT Operations function at the Bank of Canada including the writing of business processes, hiring of staff, and integration into the Bank of Canada IT services delivery model;

- Bank of Canada Computing Environment Evolution (BOCCEE national project): The delivery of a complete assessment of the Bank of Canada's computing environment including 3 data centres (primary, secondary, and funds management), the idea of high availability services, the simplification of the data centre footprint by consolidating one or more data centres, the use of Green IT best practices, and the identification of gaps to deliver the organization's future needs;
- Integrated Systems Monitoring (ISM national project): The assessment, recommendation, consolidation, and implementation of a new integrated monitoring system for the Bank of Canada production and pre-production systems covering all IT infrastructure, IT custom applications, WAN links, dark fibre, and facilities of all data centres;
- NAS/SAN Implementation (national project): Based on recommendations from the Continuity of Operations Project recommendations, this project covered the assessment, consolidation, and implementation of a NAS and SAN solution for all Bank of Canada production and pre-production systems. The project also included renewal of enterprise wide backup solution;
- Responsible to provide data centre consolidation, architectures, frameworks, strategies, roadmaps, design alternatives for Corel to meet their business and application requirements;
 - Responsible for advising and guiding in planning of the strategic direction of technology at the Bank (member of IT Architecture Counsel);
 - Provided data centre consolidation plan and roadmap to relocate and demolish the funds management data centre and re-use the space as reclaimed office space and save on operational costs;
 - Responsible to provide new data centre architectures such as hot aisle containment systems for achieving higher operational efficiency in a data centre (as delivered in the DCHAP project);
 - Employed Lead capacity planning strategy to ensure rapid growth can take place without hurdles of construction or acquisition time;
 - Provided design alternatives on power and cooling for minimum operational costs using ideas such as in-row cooling and hot aisle containment achieving a Power Usage Effectiveness (PUE) ratio of 1.8 (average over a year) to meet both the business and application requirements;
 - Provided rack layout design alternatives as a standard for the high availability hosting space at the Bank of Canada primary data centre for the use of mission critical systems for the Canadian economy;
- Responsible for providing facilities management services of the Bank of Canada data centres;
 - Responsible for the management and operations of the three data centres including power and cooling systems – later became 2 data centres;
 - Responsible for training Bank of Canada IT and Facilities staff on technical details of all chilled water interruptions and high and low voltage shutdowns with respect to the impact on the data centre and the Bank of Canada IT software, hardware, and services;
 - Responsible to attend and chair the crisis meetings of power or chilled water outages (prior to chilled water plant);
 - Responsible for managing the chilled water interruptions at the Bank from an IT perspective as it affects the data centres;
 - Responsible for putting into service quality control methods for the data centre facility operations
 - Responsible for managing the high and low voltage shutdowns at the Bank from an IT perspective as it affects the data centres;
 - Responsible for reviewing and advising on data centre facilities management and long term strategy;
 - Responsible for reviewing and advising on the continuity of operations plan for facilities and ensure alignment with IT's continuity of operations plan;
 - Responsible and rewarded for merging IT and facilities to jointly deliver projects and conduct daily business – Corporate Services award for communications;
- Responsible for documenting enterprise data centre asset management tools and processes, incorporating IT best practises for high level management;
 - Responsible for employing the use of asset management tools such as Peregrine Systems AssetCenter and ServiceCenter to document and manage data centre assets with ITIL based asset management processes and procedures;
 - Responsible for assembling capacity information to asset reports and deliver reporting to the assistant director of IT client services on a monthly basis;

- Responsible for reporting on the decommissioning of the servers and relocation of the servers to the DCHAP steering committee on a bi-weekly basis;
- Responsible for reporting on the number of devices migrated to the monitoring services at the ISM steering committee level on a bi-weekly basis;
- Responsible for analyzing power and HVAC mechanical designs in data centre environments, and making recommendations on options for increasing capacity/scalability, incorporating best practises;
 - Responsible to review all data centre related electrical and mechanical engineering drawings for the new chilled water plant to ensure all electrical systems were redundant and noted that the chilled water piping in the data centre was not redundant;
 - Responsible for the introduction of the idea of a data centre inside a data centre in order to quickly be able to deliver a high availability computing space at the Bank's head office;
 - Responsible to analyze single and 5 line power diagrams for power distribution systems and recommend solutions to meet higher availability requirements such as multiple power sources delivered to two power distribution units (PDU), and each PDU to deliver power to every high availability rack;
 - The multi PDU scenario not delivers a redundant power model but can also allow for growth by replacing the power source of each PDU to a larger source, one at a time allowing for the increase in capacity when needed;
- Responsible for Green IT best practises for data centre design/capacity growth while remaining fiscally responsible;
 - Responsible for following Green IT computing practise for the DCHAP project in the areas of product longevity for new infrastructure (replacing components vs. entire systems), power management (high voltage power, 3 phase systems right to the rack), and materials recycling (disposal of transformers, drywall, copper water piping, cooling ducts, copper and fibre cabling, computer systems, hard disk destruction);
 - Responsible to ensure the achievement of a low PUE metric – successfully achieved less than 1.8;
- Accountable to the High Availability programme managers, Chief of Corporate Services, IT Services Director, and IT Client Services Assistant Director for the various projects;
- Other project/program responsibilities included;
 - Responsible for the project timelines and its activities and their integration into the programme;
 - Responsible for managing risk, issue, and action logs for the projects;
 - Accountable for developing and managing the project timelines, milestones, and activities within the various projects, including project plans and schedules;
 - Responsible for setting project budgets and managing the projects within these means;
 - Responsible for working within and suggesting changes to the various governance models;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
 - Responsible for developing and delivering training of technical data centre management, operations management, and various ITIL processes and procedures (incident, problem, and critical incident management) to IT staff;
 - Responsible for the initial establishment of the IT Operations function at the Bank of Canada;
 - Responsible for putting into service an application migration method for QA and production environments;
 - Responsible for developing and delivering a variety of technical and non-technical presentations to the various project teams and management including infrastructure implementation plans, overall project direction, and regular project status presentations;
 - Responsible for delivering a variety of technical and non-technical presentations to the Bank wide community including interim project progress presentations (Bank wide), formal project closure and “ribbon-cutting” for the data centre (Bank wide), new data centre design techniques (Bank IT only), highly available data centre HVAC and power systems (Bank IT and facility only), and ITIL release management (Bank IT management only);
 - Responsible for developing and delivering training to new Bank of Canada managers on Bank of Canada IT services and solutions;
 - Member of the Bank of Canada Change Management board (ITIL process); and
 - High level project deliverables include the delivery of technology across two data centres, ITIL & CMMI based processes and procedures, operational procedures, support organization design and staffing,

- training of the new team, service level agreement with the end user community, operating level agreements & underpinning contracts with third parties, and building an ongoing operations cost model;
- Project management software: MS Project, MS Excel, MS Word, Mindjet Mind Manager, MS PowerPoint, Autodesk AutoCAD, Google Sketch Up, Adobe Illustrator.

Recognition

- 2009 Received signed letter of recommendation from advisor to the Governor;
- 2006 Received Corporate Services award for Communication (Chief of Corporate Services);
- 2006 Nominated for Director's Award for Information Technology Services;
- 2005 Received Director's Award for Information Technology Services.

Project 10

Client: R.E. Gilmore Investments

Role: Programme Manager, Project Manager

Date: 2003 Sep - 2005 Jun

Project Description

Gilmore offers a full range of print supply-chain solutions to help large distributed enterprises get their products to markets worldwide. They offer a full range of hosted solutions to their customers from enterprise content management and web-based information delivery to traditional print and fulfillment.

Role Description

- Responsible for various projects as a Project Executive (cumulative value > \$9M):
 - DC UPS Power Simplification project: The re-cabling and consolidation of all power to IT infrastructure in the data centre with managed power distribution points and a pair of redundant UPS units;
 - Network Remodelling project: The assessment, design, and the deployment of a new core redundant core network and edge switches;
 - Unified Directory Service Project (UDSP): The design, deployment, and support to offer single sign on services using Microsoft Active Directory over LDAP for Windows, UNIX, Linux, and custom applications;
 - Patch Management project: The planning, deployment and support of a patch management system for desktops and servers on any platform;
 - Mail Unification Project (MUP): The planning, implementing, and migration of various Linux Sendmail messaging environments to a Microsoft Exchange clustered solution;
 - IT Consolidation project: The consolidation of IT services in the Ottawa data centre to minimize operational costs, increase system efficiency, and simplify the IT infrastructure;
 - Other IT infrastructure and services projects which covered the deployment and integration of EMC Documentum, Oracle (various versions and products), Microsoft SQL, Microsoft IIS web cluster, Linux FTP cluster, CheckPoint Firewall-1 on Nokia, Fortigate firewall, EMC Celerra with Clariion, Novell services, and various other print industry specific and custom applications;
- Member of the steering committee (as Project Executive) for the DC UPS Power Simplification project, Network Remodelling project, Unified Directory Service Project (UDSP), Patch Management project, Mail Unification Project (MUP), IT Consolidation project, and all other general infrastructure and services projects;
- Project stakeholders: Gilmore IT Services (Overclick Technologies), Gilmore Global and Logistics Services, Gilmore Doculink International, Gilmore Printing Services, Gilmore Reproductions, and Gilmore Facilities Management;
- Responsible to provide data centre consolidation, architectures, frameworks, strategies, roadmaps, design alternatives for Gilmore to meet their business and application requirements;
 - With experience from Nortel, brought forward architectures such as virtualization and the combination of workloads for common services like email, storage and document management, databases, web services, and unified directory services for consolidation of services across all Gilmore data centres;
 - Designed and reviewed the simplified battery backed power systems providing various design alternatives as solutions to meet the business needs for the primary data centre;
 - Simplified the power systems to and inside the primary data centre by consolidating many UPS systems into two distinct redundant larger units with dual power distribution to business critical racks and single power distribution to others to meet financial constraints;

- Wrote strategies and roadmaps to support the consolidation of servers based on common workloads for management distribution;
- Responsible for the drafting of communications plans to be distributed by the chief of IT to a corporate wide audience with adequate notice of any system outages;
- Responsible for providing facilities management services for 3 Ottawa data centres;
 - Responsible for the management of facilities activities surrounding the data centres in Ottawa including power and cooling systems;
 - Responsible for the close communication between IT and facilities to work with power and cooling outages along with load shedding from generator systems when shared with life/health and safety systems;
 - Responsible for scheduling maintenance of cooling and power systems and monitoring temperatures and humidity of the data centers;
 - Responsible for the planning of lead capacity for power systems and lead capacity for cooling systems;
- Responsible for documenting enterprise data centre asset management tools and processes, incorporating IT best practises for high level management;
 - Responsible for employing the use of asset management tools such as Avensoft Perfect Tracker and Microsoft Excel to document and manage data centre assets with ITIL based asset management processes and procedures;
 - Responsible for summarizing the progress of consolidated assets and to-be-recycled assets for regular reporting to the chief of IT;
- Responsible for analyzing power and HVAC mechanical designs in data centre environments, and making recommendations on options for increasing capacity/scalability, incorporating best practises;
 - Responsible for reviewing all power systems drawings to make recommendations for the re-wiring of the primary data centre to accommodate the replacement of the smaller UPS systems while recommending design options to minimize costs, potential undesired outages, and to meet growth requirements while following best practises;
 - Responsible for reviewing mechanical drawings and systems to better understand the cooling challenges faced at the primary and secondary data centres in the Ottawa area;
 - Responsible for recommending no changes to the mechanical systems but only redirection of cooled air to the front of the IT equipment and continued consolidation of IT services to minimize the number of IT infrastructure components to be cooled;
- Responsible for Green IT best practises for data centre design/capacity growth while remaining fiscally responsible;
 - Responsible for ensuring Green IT (at the time commonly called “environmentally friendly”) best practises were employed while increasing the UPS power capacity of the data centre;
 - Responsible for ensuring Green IT materials recycling methods were employed when disposing of decommissioned IT equipment, UPS batteries, and copper wiring;
 - Responsible for ensuring Green IT software & deployment optimization methods were used when performing consolidation based on resource allocation and virtualization;
 - Responsible for purchasing new products which would meet Green IT product longevity and power management (including power supplies, video card less systems, and lower voltage hard disk subsystems) standards and best practises;
- Accountable to the Chief Information Officer;
- Other project/program responsibilities included;
 - Responsible for the project timelines and its activities;
 - Responsible for managing risk, issue, and action logs for all project;
 - Responsible for managing project budgets;
 - Responsible for working within and suggesting changes to the governance model;
 - Responsible for setting and managing plans, schedules, resources, and milestones;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
 - Responsible for developing and delivering a variety of technical and non-technical presentations to the IT teams and management including data centre operations, consolidation strategies, data centre power systems (including UPS and generator systems), overall project direction, and regular project status presentations;

- Project management tools used: MS Project, MS Excel, MS Word, MS PowerPoint, MS Visio, Mindjet Mind Manager, EMC Documentum, Autodesk AutoCAD.

Project 9

Client: Nortel Networks

Role: Programme Manager, Project Manager

Date: 2000 Dec - 2003 Aug

Project Description

As a Canadian leader in networking and telephony products, Nortel Networks was in the business of designing, manufacturing, and supplying customers their products through a network of distribution channels and direct sales. Originally named Northern Electric and Manufacturing and positioned in the telecommunications equipment supply sector in Canada back in 1895, Nortel is now much smaller than it once was. At the time, Nortel was spread across the globe and had over 100,000 employees and around 20,000 consultants.

The project consisted of a very large global consolidation and relocation effort for 20 data centres and the IT services and infrastructure managed within them along with processes and procedures to quickly accommodate increases in capacity.

Role Description

- Responsible to advise on data centre consolidation and guide on capacity assessments for the Nortel data centres;
 - Responsible to share capacity assessment and planning methodologies used in the practise of systems engineering as a method to isolate and improve individual components in a complete system;
 - Responsible to lead and be the authority on the weekly global working group meetings with statistical data for ongoing effort to assess the overall changing capacity for each Nortel data centre;
 - Responsible to advise on the transition of data centre support services to Computer Sciences Corporation (CSC) including server, storage, racking/stacking, networking, etc.;
 - Responsible to advise individual team leads at each site on a one-on-one basis for data centre consolidation planning;
 - Member of a team responsible for the consolidation and move of equipment and services to and from 20 data centres in Canada, US, Brazil, UK, and France with minimal downtime and the goal to reduce to a minimal number of data centres with long and short term cost saving solutions;
- As a Project Executive for the Nortel Data Centre Consolidation project, was mandated to deliver a national IM/IT data centre relocation and consolidation project;
 - Designs of several data centre changes to accommodate the additional servers being relocated to the respective sites. Changes include demolition of wall space to increase square foot print, additional cooling units, and new UPS systems;
 - Responsible for the plans and schedules for the relocation for the purpose of centralizing services from one site to another;
 - Responsible for the communication plans to client communities to ensure that users are aware of the changes ahead and can plan accordingly;
 - Responsible for the decommissioning of as many data centres as possible to minimize operational costs while maintaining developer staff efficiency;
 - Responsible to meet a moving target of consolidated servers starting at 2500 and achieved 950 from well over 3600 physical servers;
- Responsible as a Project Executive and a member of the steering committee for the Nortel Data Centre Consolidation national project (cumulative value > \$50M CAD);
 - Member of the steering committee (as Project Executive) with the Senior Manager of Design Environment Solutions, Director of Design Environment Solutions, and other project managers;
 - Project stakeholders: Nortel Design Environment Solutions, Nortel Optical Research and Development, Nortel Procurement, and Nortel Facility and Maintenance Services;
 - The Nortel Data Centre Consolidation project consisted of a very large global consolidation and relocation effort for 20 data centres and the IT services and infrastructure managed within them along with processes and procedures to quickly accommodate increases in capacity;

- The project delivered a final global IM/IT application server infrastructure physical count of 950 (consolidating and decommissioning well over 3600 physical servers) while increasing designer productivity in batch hardware simulations, software builds, and application delivery;
- Responsible to provide data centre consolidation, architectures, frameworks, strategies, roadmaps, design alternatives for Nortel to meet their business and application requirements;
 - Gathered current capacity baselines and expected capacity maximums and used a lead strategy to ensure daily, weekly, and monthly loads could be built on remote compute clusters at far away locations in globally centralized data centres;
 - Jointly devised a consolidation strategy to centralize all storage systems from to-be-decommissioned data centres to globally centralized data centres using EMC as a partner;
 - Provided many design alternatives for infrastructure architecture and consolidation vertical areas to drop the server count and only relocate consolidated systems using architectures such as virtualization, combination of workloads (on load build environments), consolidation of web servers, common user UNIX desktops over terminal servers and virtualization, and consolidation of storage area networks with replication between sites;
- Responsible for providing facilities management services for all Ottawa data centres;
 - Responsible to ensure maintenance plans were in place for all nine of the Ottawa Design Environment Solutions data centres located at various campuses;
 - Responsible for the hydro shutdowns and chilled water maintenance plans of the SkyPark, SkyLine, and Qualcomm sites (totalling 4 data centres);
 - Responsible for the accidental power outages and the documenting of post incident reviews for management circulation;
 - Responsible for the proper decommissioning of data centre equipment when closing sites;
- Responsible for documenting enterprise data centre asset management tools and processes, incorporating IT best practises for high level management **R3**;
 - Solely responsible for the entire project reporting for all sites on the capacity planning and infrastructure usage, forecasting of all design servers in 20 data centres globally;
 - Responsible for employing the use of asset management tools such as an in-house developed UNIX based asset management system with Microsoft Excel integration to document and manage data centre assets with ITIL based asset management processes and procedures for project reporting to all of management;
 - Responsible for converting the cumbersome Excel tables to SQL datasets and creating cubes to more rapidly report on the status and progress of the consolidation effort;
 - Responsible for trending future utilization of systems using mathematical calculations and assumptions to help with the consolidation effort and justify further consolidation;
 - All reports were presented weekly to the senior leadership teams under the Design Environment Solutions umbrella;
 - Responsible for the asset tracking of no longer used IT equipment for leased asset contract closures;
 - Responsible for the asset tracking of hard disks for the purpose of destruction and/or wiping for re-use when shipping between sites;
 - Responsible for the asset tracking of facility equipment such as re-usable transformers, UPS systems, automatic transfer switches, fire suppression systems, cooling units, pumps, and chillers for the purpose of resale and delivering the estimated resale value (at 10%) in summary to management for the purpose of cost recovery estimation;
 - Responsible for the asset tracking of facility equipment not suited for re-use and sent for destruction or recycling;
- Responsible for analyzing power and HVAC mechanical designs in data centre environments, and making recommendations on options for increasing capacity/scalability, incorporating best practises;
 - Constantly reviewing data centre electrical, mechanical, and architectural designs and jointly making recommendations with a global team for increasing capacity for data centres in Ottawa, Billerica, Maidenhead, Raleigh, and Richardson TX;
 - Followed best practises for high density cooling requirements when virtualized servers were incorporated into the consolidation plans as hot spots in the data centres were growing and causing a few system outages;

- Reviewed site demolition plans for electrical and mechanical systems and recommending they follow best practise for the disposal of chilled water (varied based on country regulations) and other electrical systems such as batteries and transformers;
- Responsible for Green IT best practises for data centre design/capacity growth while remaining fiscally responsible;
 - Responsible for ensuring Green IT (at the time called “environmentally friendly”) best practises were employed when purchasing new equipment for data centres and expecting a 2.5 to 7 year life with easily removable and replaceable parts on certain systems to allow for quick upgrades when required;
 - Responsible for the disposal of IT equipment following Nortel recycling policies (similar to some of the Green IT best practises) including hard disk wiping and destruction when necessary;
 - Responsible for following best practises while disposing of facilities equipment including chilled water, UPS batteries, copper and fibre cabling, and general metals when demolishing and/or decommissioning data centres;
 - Responsible for employing Green IT software & deployment optimization using techniques such as resource allocation, terminal servers, and virtualization;
- Accountable to the Director of Design Environment Solutions;
- Other project/program responsibilities included;
 - Responsible for the project timeline and its activities;
 - Responsible for managing risk, issue, and action logs for the project;
 - Responsible for managing the project budget;
 - Responsible for working within and suggesting changes to the governance model;
 - Responsible for setting and managing the project plans, schedules, resources, and milestones;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
 - Responsible for working with many sites around the globe (NA, CALA, EMEA, ASIAPAC) to perform capacity planning across Nortel’s global network environment;
 - Responsible for developing and delivering a variety of technical and non-technical presentations to the global Design Environment Solutions teams and management including data centre relocation and decommissioning plans, infrastructure consolidation plans, overall project direction, regular project status presentations, and weekly project briefings to a global audience within Nortel;
- Project management tools used: MS Project, MS Excel, MS Word, MS PowerPoint, MS Visio, Mindjet Mind Manager, Autodesk AutoCAD.

Project 8

Client: BitFlash Graphics Inc. [now a division of Quickoffice]

Role: Project Manager

Date: 2000 Nov - 2000 Nov

Project Description

BitFlash is the industry-recognized leader in implementing Mobile SVG solutions for wireless handsets, personal digital devices, and consumer electronics. Founded in 1997, BitFlash is now a division of Quickoffice. At the time, BitFlash employed less than 100 employees and consultants.

Role Description

- Accountable to the Director of Information Technology;
- Other project/program responsibilities included;
 - Responsible for providing high level project plans for future strategic directions and roadmaps to meet business milestones;
 - Responsible for estimating future project budgets (value > \$1M);
 - Responsible for working within the governance model;
 - Responsible for documenting current IT infrastructure capability and forecast for the future;
 - Responsible for advising and guiding the staff on IT infrastructure project management methodologies;
 - Responsible for documenting and advising the director of IT on data centre operations management;
 - Responsible for assisting the development and quality assurance teams with their business plans;

- Responsible for documenting security policies and documentation, technology usages, and other plain English documents for the corporation in relation to information systems.

Project 7

Client: IQEQ Technology Inc. [defunct]

Role: Project Manager

Date: 2000 Sep - 2000 Oct

Project Description

No longer operating, IQEQ Technology was a traditional IT service provider company located in Ottawa. They offered their services and solutions to various private and public sector enterprises. Their departments included support, customized software development, and IT infrastructure solutions.

Role Description

- Accountable to the Chief of IT and Chief operating officer;
- Other project/program responsibilities included;
 - Responsible for providing high level project plans for future strategic directions and roadmaps to meet business milestones;
 - Responsible for estimating future project budgets (value < \$5M);
 - Responsible for working within the governance model;
 - Responsible for the development standard template documents for client proposals, IT operations run books, application and infrastructure project delivery (including action/issue/risk logs, generic project plans and schedules, project charters, project requirements, and project test plans);
 - Responsible for advising and guiding the technical staff and management of the company;
 - Responsible for producing and delivering weekly technical training seminars to the support staff on technical topics such as application development methodologies, MS SQL Server 2000 administration, MS SQL Server 2000 database replication, MS Active Directory implementation and administration, MS Distributed Files System administration, COMPAQ Intel architecture.

Project 6

Client: EDS Canada Ltd. [now HP Enterprise Services]

Role: Project Manager

Date: 1999 Nov - 2000 Aug

Project Description

EDS helps set the pace in IT services, even north of the 49th parallel. Overseeing the Canadian operations of EDS [now HP Enterprise Services], EDS Canada provides systems integration, consulting, and other outsourced services to an array of clients. Areas of expertise include enterprise application development, business process outsourcing, data center management, and network operations. The unit also offers outsourced help desk and technology maintenance services. EDS Canada serves customers in a range of industries from offices located across the country. EDS Canada employed over 5000 employees across the country.

Role Description

- Responsible for a large number of concurrent projects as a Project Manager for external clients including enterprise network environments such as Canada Post Corporation, Government of Saskatchewan, Government of Nova Scotia, and Teranet Ontario along with the EDS Qualcomm data centre and hosting centre consisting of over 30 clustered Microsoft Windows NT 4.0 web servers plus other client infrastructure and services (cumulative value > \$50M);
- Responsible to provide data centre consolidation, architectures, frameworks, strategies, roadmaps, design alternatives for EDS' clients to meet their business and application requirements;
 - Delivered client data centre consolidation with plans and roadmaps to completely close client data centres and relocate their services from EDS data centres in Calgary and Ottawa allowing clients to re-allocate old data centre space as office space and not have to support data centres as part of their core business;

- Jointly responsible for advising and guiding various clients such as the Canada Post ePost project, Teranet Ontario infrastructure project, and EDS Microsoft hosting services on IT strategies and design considerations such as clustered solutions for application and infrastructure projects to meet business needs;
- Jointly responsible for consolidating EDS Saskatoon and Regina data centres to the Calgary facility including all servers and services related to local EDS business to minimize data centre operations costs and make better use of site-to-site connectivity;
- Responsible for providing facilities management services for EDS' data centres in Ottawa, Regina, and Saskatoon;
 - Responsible to manage the data centres in Regina and Saskatoon and offered assistance to the data centre in Ottawa at the Qualcomm site including maintenance plans for generator systems, power panels, transformers, cooling units, condensing units, and pump systems;
 - Responsible to plan all power shutdown events for SaskPower maintenance schedules;
 - Responsible for the general maintenance contracts of building systems including the snow removal contract for the condensing units;
- Responsible for documenting enterprise data centre asset management tools and processes, incorporating IT best practises for high level management;
 - Responsible for employing the use of asset management tools such as BMC Patrol and Remedy to document and manage data centre assets following predefined processes and procedures;
 - Responsible for ensuring new assets including client assets added to the data centre are properly entered into the asset management systems following change control for monthly reporting of the growth of assets in the data centres;
 - Responsible for tracking data centre environmental assets for power and cooling systems in customized Microsoft Excel spreadsheets with maintenance dates and commissioning dates allowing easy monthly reporting on maintenance schedules required for any system shutdowns or generator testing;
- Responsible for analyzing power and HVAC mechanical designs in data centre environments, and making recommendations on options for increasing capacity/scalability, incorporating best practises;
 - Regularly analyzing electrical and mechanical systems designs for the Government of Saskatchewan client data centre sites to offer written recommendations on best practises for rapid increase in power and cooling requirements in both short term and long term solutions;
 - Commonly reviewing electrical and mechanical systems designs for EDS data centres in Saskatoon and Regina for the use purpose of supporting planned power shutdowns and looking at temporary options to increase capacity to minimize the potential of outages when redundancy is compromised;
- Other project/program responsibilities included;
 - Responsible for project timelines and their activities;
 - Responsible for managing risk, issue, and action logs for all projects;
 - Responsible for setting and managing the project budgets, project plans, schedules, resources, and milestones;
 - Responsible for working within and suggesting changes to the governance models;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
 - Responsible for gathering user requirements for all projects and tracking to the delivery of their functionality;
 - Responsible for the development and delivery of presentations and regularly scheduled project briefing meetings on and off-site;
 - Responsible and accountable for delivering pre-sales assistance for account managers including assistance in the RFP process, presentations, solutions design;
 - Responsible for the development and delivery of technical training on topics such as data centre generator and UPS systems, CheckPoint FireWall-1 administration, Microsoft Windows Terminal Server 4 administration and implementation, Microsoft Cluster Services administration and implementation, and Microsoft Windows NT 4.0 Server administration to clients and the EDS 2nd level support groups;
- Project management tools used: MS Project, MS Excel, MS Word, MS PowerPoint, Visio Corporation Visio, Mindjet Mind Manager, Autodesk AutoCAD.

Project 5

Client: Saskatchewan Wheat Pool [now Viterra]

Role: Project Manager

Date: 1999 May - 1999 Oct

Project Description

Now known as Viterra, the Saskatchewan Wheat Pool was a grain handling, agri-food processing and marketing company based in Regina, Saskatchewan. The Pool created a network of marketing alliances in North America and internationally which made it the largest agricultural grain handling operation in the province of Saskatchewan. Their employee base was over 3000 plus consultants.

Role Description

- Responsible for the Secure Perimeter project as a Project Manager: The assessment, design, and implementation of security policies and technology solutions to secure the entire enterprise network (value < \$1M);
- Responsible for advising and guiding staff and management on common practices for IT security to meet documented business requirements;
- Accountable to the UNIX Systems Manager;
- Other project/program responsibilities included;
 - Responsible for the project timeline and its activities;
 - Responsible for managing risk, issue, and action logs for the project;
 - Responsible for managing the project budget;
 - Responsible for working within the governance model;
 - Responsible for setting and managing the project plans, schedules, resources, and milestones;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
 - Responsible for gathering user requirements and tracking to the delivery of their functionality;
 - Responsible for the development and delivery of presentations and regularly scheduled project briefing meetings on and off-site;
- Project management tools used: MS Project, MS Excel, MS Word, MS PowerPoint, Visio Corporation Visio, Mindjet Mind Manager.

Project 4

Client: Western Business Machines

Role: Project Manager

Date: 1997 Nov - 1999 April

Project Description

WBM is a complete system integrator providing technologies streamed into three core areas: digital IT, telecommunications, and hardcopy imaging. WBM has 3 locations in western Canada and has been in business since 1950.

Role Description

- Responsible for multiple projects as a Project Executive for multiple clients including Saskatoon Police Services, City of Saskatoon, SARC a non-profit association, and Saskatoon Community Clinic a health care co-operative (cumulative value > \$5M);
- Responsible to provide data centre consolidation, architectures, frameworks, strategies, roadmaps, design alternatives for WBM's clients to meet their business and application requirements;
 - Jointly responsible for planning and consolidating data centres for the SARC and the Saskatoon Community Clinic;
 - Responsible for recommending a design alternative and roadmap to put in place a secondary data centre to allow for critical systems to remain available in the event of a data centre failure for the Saskatoon Community Clinic. Although the solution met their needs, the secondary data centre was too cost prohibitive at the time for not only the room but the computing systems and licenses, it was not implemented;

- Jointly responsible for providing design alternatives on non-raised floor data centre space to accommodate proper cooling flow for the two WBM data centres in both Saskatoon and Regina;
- Responsible for analyzing power and HVAC mechanical designs in data centre environments, and making recommendations on options for increasing capacity/scalability, incorporating best practises;
- Responsible for reviewing electrical and mechanical engineering drawings and recommended the roadmap for growth be the replacement of the single phase UPS system and the addition of a new traditional computer room AC (CRAC) unit for the SARC and Saskatoon Community Clinic;
- Responsible for reviewing and approving any changes drawn by engineering firms to their drawings for the purpose of sign-off on behalf of the client for completeness, meeting their business requirements, and best practises at that time;
- Responsible for drawing single line diagrams of single phase power systems to the maximum size of 16kW with a bypass capability and 208v to 120v transformers;
- Responsible for analyzing cooling systems based on traditional CRAC designs with and without raised floor using air-flow models to show proper cooling and sure best practise of flow rates are achieved for cooling IT systems;
- Responsible for reviewing and recommending on cabling drawings for new data centres;
- Other project/program responsibilities included;
 - Responsible for project timelines and their activities;
 - Responsible for managing risk, issue, and action logs for all projects;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
 - Responsible for working within and suggesting changes to the governance model;
 - Responsible for directing activities to planned project deliverables, the resolution of issues, and the management of project risks;
 - Responsible for gathering user requirements for all projects and tracking to the delivery of their functionality;
 - Jointly responsible for advising and guiding various clients on IT strategies and design considerations for application and infrastructure projects to meet business needs;
 - Responsible for the requirements gathering, planning, and delivery of numerous Novell to NT4 migrations for small and large enterprise network environments;
 - Responsible for the development and delivery of presentations and regularly scheduled project briefing meetings on and off-site;
 - Responsible and accountable for delivering pre-sales assistance for account managers including assistance in the RFP process, presentations, solutions design;
 - Responsible for technical document writing and delivery of presentations to a variety of audiences;
 - Responsible for delivering technical instruction in formal course settings for employees and clients on generator backed power systems, HVAC systems of a data centre, Novell NetWare administration, Microsoft Windows NT 4.0 (server and workstation) implementation and administration, Microsoft Exchange Server implementation and administration, Microsoft Windows Terminal Server 4.0 implementation and administration, Microsoft SQL Server 7 implementation and administration, TCP/IP and Internetworking, and Windows 95 installation and implementation, SQL programming, Visual Basic programming, and ASP programming;
- Project management tools used: MS Project, MS Excel, MS Word, MS PowerPoint, Visio Corporation Visio, Mindjet Mind Manager.

Project 3

Client: Deloitte & Touche

Role: Project Manager

Date: 1997 Sep - 1997 Oct

Project Description

Deloitte, one of Canada's leading professional services firms, provides audit, tax, consulting and financial advisory services to a wide range of Canadian and international clients. Deloitte is the Canadian member firm of Deloitte Touche Tohmatsu, which is a network of member firms, each of which is a legally separate and independent entity.

Role Description

- Responsible for the Novell to NT migration project in Saskatchewan region in 3 cities as a Project Manager (value > \$1M);
- Jointly responsible (with a team of professionals across Canada) for the migration to Windows NT Server from Novell NetWare across multiple sites affecting the Canadian and global enterprise network of Deloitte & Touche;
- Project key stakeholders: Deloitte & Touche Information Technology, Deloitte & Touche Insolvency Group, Deloitte & Touche Audit Group, and Deloitte & Touche Consulting Services
- Accountable to the Deloitte & Touche Information Technology Practise Leader of Saskatchewan;
- Other project/program responsibilities included;
 - Responsible for the project timeline and its activities;
 - Responsible for managing risk, issue, and action logs for the project;
 - Responsible for managing the project budget;
 - Responsible for working within the governance model;
 - Responsible for setting and managing the project plans, schedules, resources, and milestones;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
 - Responsible for developing and delivering regularly scheduled project meetings;
 - Responsible for delivering instruction and training of Windows NT 4.0 architecture and systems management to Saskatchewan IT staff;
- Project management tools used: MS Project, MS Excel, MS Word, Visio Corporation Visio.

Project 2

Client: K&K Real Group of Companies

Role: Project Manager

Date: 1997 Apr - 1997 Aug

Project Description

No longer operating, K&K Real Group of Companies was an IT systems integration and support company. The company supported its clients located in the Saskatoon area (in Saskatchewan).

Role Description

- Responsible for multiple projects as a Project Manager for multiple clients including Living Books, Stronach & Associates, B W Baerg Truss Manufacturing, and El Rancho Food Services (cumulative value > \$500K);
- Responsible for advising and guiding various clients on IT application project design considerations for their specific business needs;
- Other project/program responsibilities included;
 - Responsible for project timelines and their activities;
 - Responsible for managing risk, issue, and action logs for all projects;
 - Responsible for setting and managing the project budgets, project plans, schedules, resources, and milestones;
 - Responsible for directing activities to planned project deliverables, the resolution of issues, and the management of project risks;
 - Responsible for gathering user requirements for all projects and tracking to the delivery of their functionality;
 - Responsible for the development and delivery of presentations and regularly scheduled project briefing meetings on and off-site;
 - Responsible and accountable for delivering pre-sales assistance for account managers including assistance with presentations and solutions design;
 - Responsible for technical document writing and delivery of presentations to a variety of audiences;
- Project management tools used: MS Project, MS Excel, MS Word, Visio Corporation Visio.

Project 1

Client: Cantel: Advanced 2000 Systems

Role: Project Manager

Date: 1997 Apr - 1997 Aug

Client: Cantel: Advanced 2000 Systems

Role: Project Manager

Date: January 1996 – March 1997

Project Description

Advanced 2000 Systems Inc. distributes and retails wireless communications products and accessories. Its products include cellular phones, accessories, power amps, antennas, and business and home communication systems to wireless dealers and agents; long distance services, landline phones, and wireless products and accessories. Cantel Communications became Cantel AT&T, then Rogers Cantel AT&T, then Rogers AT&T Wireless, and now Rogers Wireless.

Role Description

- Responsible for various projects as a Project Manager including (value > \$500K):
 - Business Process Management Integration (BPMI) project: The assessment, design, and integration of the existing custom BPM software application with Abacus2 accounting software and TelMAX cellular telephony accounting software;
 - Business Process Management (BPM) project: The assessment, design, and deployment of a customized BPM application using Microsoft Visual Basic and SQL for managing sales and inventory of products and services;
 - Wide Area Network (WAN) project: The assessment, design, and implementation of dial-up and frame relay WAN connections to connect the various sites to the enterprise network;
 - Windows Upgrade project: The assessment, design, and migration of a Windows NT 3.51 domain environment to Windows NT 4.0 including desktop clients (Windows 3.11 and 95 to Windows NT 4.0 Workstation) across a large number of remote sites from one primary office;
- Other project/program responsibilities included;
 - Responsible for delivering user and administration training of Abacus2 and TelMAX BPM software packages and custom in-house BPM software;
 - Responsible for project timelines and their activities;
 - Responsible for managing risk, issue, and action logs for all projects;
 - Responsible for setting and managing the project budgets, project plans, schedules, resources, and milestones;
 - Responsible for directing activities to planned deliverables, resolving issues, and managing risks;
 - Responsible for gathering user requirements for all projects and tracking to the delivery of their functionality;
 - Responsible for the development and delivery of regularly scheduled project briefing meetings;
- Project management tools used: MS Project, MS Excel, MS Word.