
Corporate Resume

Version 1.5



1309 CARLING AVENUE
OTTAWA, ONTARIO K1Z 7L3
TEL: 613-722-3232 / FAX: 613-722-9435
WWW.BITHEADS.COM

Document Control

Version	Description of Changes	Date (dd/mm/yyyy)	Initials
1.0	Ready for submission	11/04/2001	GJM
1.1	Updated NBX section	20/06/2001	NXS
1.2	Added Mark Baker to management team profile and updated relevant project history.	04/01/2002	NXS
1.3	Made additional changes to relevant project history and re-ordered projects	04/01/2002	NXS
1.4	Added CCRA-RUP and Health Canada RRTD Feasibility Study projects	19/02/2002	FIT/GJM
1.5	General updates	08/31/04	SAL

Contents

DOCUMENT CONTROL	2
CONTENTS.....	3
1 COMPANY OVERVIEW.....	1
2 RELEVANT EXPERIENCE.....	1
3 THE PRINCIPALS.....	3
3.1 SCOTT SIMPSON, PRESIDENT/CEO & CO-FOUNDER.....	3
3.2 PAUL WINTERHALDER, VICE PRESIDENT/COO & CO-FOUNDER.....	3
3.3 RICK McMULLIN, VICE PRESIDENT & CO-FOUNDER.....	3
4 THE EXECUTIVE TEAM.....	4
4.1 TED BURNETT, DIRECTOR OF BUSINESS DEVELOPMENT	4
4.2 SUSAN RICHARDS, DIRECTOR OF FINANCE AND ADMINISTRATION	4
5 RELEVANT PROJECT HISTORY	5
5.1 3COM, FORMERLY NBX CORPORATION (NETWORK BASED PBX SYSTEM).....	5
5.2 NATURAL CONVERGENCE (VIRTUAL KEY SYSTEM).....	6
5.3 CANADA POST CORPORATION (ROSS POINT OF SALE SYSTEM)	7
5.4 CPC PDO (DESIGN AND CODE AUDITING)	8
5.5 CANADA POST INTERNATIONAL (CUSTOMIZABLE VERSION OF POINT-OF-SALE SYSTEM)	9
5.6 BELAIR NETWORKS (EMBEDDED SYSTEMS DEVELOPMENT).....	9
5.7 SOCIETY OF OBSTETRICIANS AND GYNECOLOGISTS OF CANADA (CD AND WEB-BASED EDUCATIONAL TOOLS)	10
5.8 PROVANCE TECHNOLOGIES (WEB-BASED ASSET OUTLOOK DEVELOPMENT).....	10
5.9 AIRROAMER INC. (WIRELESS AUTHENTICATION DEVELOPMENT)	11
5.10 IBM/RATIONAL TECHNOLOGY MENTORING.....	12
5.11 INFORMIO (VOICE WEB INFRASTRUCTURE).....	14
5.12 HARDOLLAR CORPORATION (WEB-BASED APPLICATION DEVELOPMENT FRAMEWORK)	15
5.13 VERSATEL NETWORKS (MESOWARE PORT TO SOLARIS)	15
5.14 CADMIAN INC. (MOBILE/WIRELESS COURSEWARE DEVELOPMENT)	16
5.15 CANADIAN ASSOCIATION OF GENERAL SURGEONS (PDA MEDICAL APPLICATION).....	16
5.16 DOMTAR INC. (REMOTE TIMESHEET ENTRY SYSTEM).....	17
5.17 LASHBACK (OUTLOOK EXPRESS APPLICATION INTEGRATION)	18
5.18 INSITE FAMILY MEDICINE (TESTVU PALM APPLICATION).....	19
5.19 INNOVAPOST (WEB-ENABLED RETAIL SERVICE PLATFORM).....	19
5.20 CCRA (CUSTOMIZED RUP).....	20
5.21 HEALTH CANADA (RRTD FEASIBILITY STUDY)	20
6 CLIENT ROSTER FOR BITHEADS, INC.	22

1 Company Overview

bitHeads, inc., federally incorporated on October 25, 1995, is a technology company specializing in custom software development, object-oriented consulting, project audits, and in-house commercial product development.

bitHeads offers a reliable, high quality alternative to in-house resources essential for formal business development. We offer practical experience and genuine expertise in all areas of information technology, from traditional client/server based systems to Internet application development. Our teams are experienced in all aspects of the development process, from analysis, design and implementation to application testing and project management.

bitHeads' core IT service offerings include:

- **Full Lifecycle Software Development** including requirements analysis and scoping/feasibility studies;
- **Applications, Systems and Performance Audits and Assessments;**
- **Technology Consulting and Mentoring.**

Over the years **bitHeads'** has gained extensive expertise and has specialized in three key technology domains or areas:

1. **Voice over IP & Telecommunications;**
2. **Enterprise/Internet Applications & Web Services;**
3. **Mobile and Wireless Solutions.**

bitHeads prides itself in producing high-quality systems, on time and on budget. We accomplish this by following industry proven software design principles and processes. We have a proven track record in estimating the size and cost of large software projects.

bitHeads currently employs approximately thirty (30) employees, 90% full time and 10% associates. A **bitHeads'** associate is a trusted sub-contractor who we have worked with on past projects.

2 Relevant Experience

bitHeads has performed performance analysis services as a function of many of the development projects it has undertaken. Specifically, **bitHeads** has performed the following performance testing and enhancement services for our clients. These projects are discussed in greater detail in Section 5:

- **Informio: bitHeads** wrote an automated Application Program Interface (API) tester **that** measured the performance of Informio's web-based API by making repeated HTTP requests to the Informio server and reporting the results.
- **HardDollar: bitHeads** used the WinRunner tool to identify and measure performance concerns with this business-to-business ecommerce site. The performance reports were then used to prioritise and fix bottlenecks within the system. The **bitHeads** development team regularly used the JOptimize framework to discover and resolve performance concerns inside the code.
- **Versatel Networks: bitHeads** ported Versatel's Total Agility Platform (TAP) from WindowsNT to Solaris and benchmarked and reported on performance issues arising from the port. In locations where slowdowns were identified, **bitHeads** enhanced the ported code and the end result was an overall better performance score for the Solaris-based solution. Additionally, **bitHeads** measured the performance of the inter-process communications (IPC) between selected components of the TAP (with automated performance tests through a test harness) and optimised the IPC component of the identified parts of the system, resulting in a large-scale reduction in communication times within the TAP environment.
- **Natural Convergence: bitHeads** assisted Natural Convergence in creating a converged voice and data solution for small- to medium-sized businesses. In order to test the performance of the system under heavy network conditions, **bitHeads** created a gateway tester that introduced network traffic to the system and measured the results. These metrics were reported to the product manager for prioritization and resolution.
- **NBX/3Com:** One of the many projects **bitHeads** has undertaken for 3Com was to create Virtual Tie Lines that allows two PBXs to communicate over an IP network. **bitHeads** created several custom testing tools inside the network environment to identify performance concerns within the product.
- **Insite-FM:** In order to create a medical handheld diagnostic and prognostication program for Insite-FM, the performance of the application on the low-power, low-speed handheld devices was taken into consideration. Technologies and approaches considered to implement the application were all tested for potential performance concerns before the technology decisions were made.
- **Canada Post Corporation: bitHeads** implemented several automated tests using WinRunner and instrumented code to provide timing and performance metrics for Canada Post's Retail Outlet Service System (ROSS).

3 The Principals

3.1 Scott Simpson, President/CEO & Co-Founder

Scott Simpson is a senior consultant and the President & CEO of **bitHeads, inc.** He has been involved in the field of Information Technology for over fifteen years with a wealth of experience in software development, computer security and telecommunications. While completing his Bachelor of Science in Computer Science (Honours) degree from the University of New Brunswick, he has worked full-time for both large and small businesses as a software designer, programmer, instructor and project leader. He has provided consulting services to organizations such as 3Com, Rational Software, Ericsson, Versatel Networks, Domtar and the Society of Obstetricians and Gynaecologists of Canada.

3.2 Paul Winterhalder, Vice President/COO & Co-Founder

Paul Winterhalder is a senior architect, Vice President & COO of **bitHeads, inc.** Mr. Winterhalder has been in the software development field for over twelve years, focusing primarily in the areas of telecommunications and object-oriented application development. Prior to forming **bitHeads, inc.**, Mr. Winterhalder worked as a principal architect of Bell-Northern Research's Generic Services Framework project, reported to be the largest object-oriented project (involving about 700 designers) in the world. The goal of the GSF project was to re-architect the call processing heart of BNR's DMS Supernode family of telecommunication switches. He has worked with such companies as 3Com Voice Solutions, Informio, Nortel Networks, Canada Post, GE Aircraft Engines and IBM. Mr. Winterhalder holds a Bachelor of Science in Computer Science Degree (Honours) from the University of New Brunswick.

3.3 Rick McMullin, Vice President & Co-Founder

Rick McMullin is a senior architect, Vice President & CTO of **bitHeads, inc.** He has been involved in the field of Information Systems and Technology for ten years with experience in software development, documentation and training. Prior to forming **bitHeads, inc.**, Mr. McMullin worked as a software architect of Bell-Northern Research's Generic Services Framework project, reported to be the largest object-oriented project (involving about 700 designers) in the world. The goal of the GSF project was to re-architect the call processing heart of BNR's DMS Supernode family of telecommunication switches. He has worked with such companies as 3Com, Fulcrum, Nortel, ObjectTime, Bell Sygma, Bell Northern Research, Rational and The Object People. Mr. McMullin holds an Honours Bachelor of Computer Science from the University of Windsor.

4 The Executive Team

4.1 Ted Burnett, Director of Business Development

As Director of Business Development, Mr. Burnett works with companies seeking accelerated development of software applications in Enterprise/Internet, VoIP/Telecom and Mobile/Wireless to consider the value proposition that is made available through a relationship with **bitHeads**. Mr. Burnett also plays a lead role in **bitHeads** strategic investment with a few of our accelerated development opportunities.

With over 24 years of senior management and technology experience, Mr. Burnett brings an extensive background in sales, marketing and business development to **bitHeads** and has been helping high tech start-ups and grow-ups in senior leadership positions throughout his career. Prior to joining **bitHeads inc.**, Mr. Burnett was Vice President of Technology at Watchfire. He has also held senior roles as Vice President of Sales and Marketing, Vice President of Business Development at Watchfire, and Director of Business Development at Why Interactive.

4.2 Susan Richards, Director of Finance and Administration

Susan Richards, CMA, BBA, has been with the **bitHeads, inc.** since its inception and has been part of the Executive Management team since 1999. Mrs. Richards has played an integral role in the company's establishment, formation and growth through her various positions within the finance and administration department. As Director of Finance, Mrs. Richards is responsible for managing all financial aspects, including financial planning, financing arrangements, legal matters and contracts. She also leads **bitHeads** accounting team. Mrs. Richards holds a Bachelor of Business Administration (Accounting Concentration) from the University of Prince Edward Island (UPEI).

5 Relevant Project History

5.1 3Com, formerly NBX Corporation (Network Based PBX System)

NBX Corporation is a telecommunications start-up based in Boston, Massachusetts. In December of 1997, **bitHeads** was hired by NBX to “ramp up” the software development effort for their new NBX100 product—an Ethernet-based PBX switch. **bitHeads** provided a Software Development Manager and an Application Architect and later grew the team to include over a dozen software developers to deliver key technology components as well as extending the functionality of the NBX product.

The NBX100 is built on the VxWorks operating system. The call processing software is implemented in ObjecTime Developer for C++. The support layer software is implemented in straight C++. The RAIMA Database Manager was used for the persistence layer, and EmWeb (an embedded Web Server) was used to develop the HTML-based administration application.

bitHeads provided the Software Development Manager for the first three months of the project (Dec – Feb). The consultant was responsible for:

- Defining the development process
- Defining the iteration plan/schedule
- Identifying the key outstanding resources
- Negotiating with marketing/management regarding product requirements
- Focusing the development team
- Driving the team to hit their iteration dates
- Working with NBX management to hire key personnel, including the full-time Software Development Manager and Vice President of Technology

bitHeads also provided an Application Architect for the project. This consultant was responsible for defining the NBX100 call processing architecture and mentoring the designs for all of the call processing services. The NBX100’s object-oriented architecture has been designed to allow parallel development of independent business services (i.e. conference, transfer, speed-dial), on top of a generic telecommunications core. The architecture also allows for the delivery of advanced services such as computer telephone integration (CTI) via TAPI, as well as web-based system administration.

In October of 1998, Version 1.0 of the NBX100 was released to manufacturing. The product was delivered on time, after 11 months of development. In March of 1999, 3Com Corporation bought NBX for \$90 Million US.

bitHeads continues to provide key technology components for the NBX100 system. For Release 1.1 of the NBX100, **bitHeads** provided two applications:

- NBX Call Reports – a Windows 95/98/NT-based application that provides detailed call information for the NBX100
- NBX pcXset – a Windows 95/98/NT-based telephone that uses a PC's speaker and microphone.

In Release 3.0 of the NBX, **bitHeads** developed two new Windows applications:

- NBX TAPI Dialer – a Windows 95/98/NT/2000-based application that provides a simple interface for using the TAPI capabilities of the NBX system. Features include dialing from a directory, incoming and outgoing call tracking and screen pops for incoming calls.
- NBX Compliment Attendant Console – a Windows 95/98/NT/2000-based application that acts as a replacement for the DSS/BLF hardware adjunct. This TAPI application allows receptionists to quickly route incoming calls to the appropriate user.

bitHeads continues to provide key technologies and services to 3COM/NBX and comprises approximately 25% of the overall development effort for 3COM.

5.2 Natural Convergence (Virtual Key System)

Natural Convergence develops carrier grade IP based applications for telecommunications service providers, enabling them to deliver a natural bundle of converged voice and data business services directly from the network to the desktop. Initially focused on the small business market, the Natural Convergence 'Virtual Key System' solution allows service providers to offer advanced web-enabled Key System functionality over a broadband connection while eliminating the need for small businesses to purchase any on site equipment.

bitHeads has been involved with Natural Convergence since the company was founded and has provided the software development team necessary for developing the first release of the product.

Our responsibilities include or have included:

- Providing an Interim CTO
- Architecting the system
- Providing the complete development team for the initial release of the product
- All quality control services

The technologies that were used on this project include:

- J2EE (JSP, Servlets, JDBC, RMI)
- C++
- IntelliJ IDEA
- ERWIN

- Windows NT
- UNIX (Sun Solaris, Linux)
- Communications protocols (SIP, MGCP, SOAP)
- Sybase SQL Anywhere
- Rational Rose
- Microsoft suite (Word, Excel, PowerPoint, Visio, Access)
- StarTeam (defect tracking and source code control system)
- Apache/Tomcat Server

Through the bitHeads' Development Acceleration Program, Natural Convergence was able to focus on building their business rather than building their product.

bitHeads was able to hit the ground running with a full development team focused on creating a leading-edge product from scratch. Not only has this resulted in the accelerated development of the product, but also it helped Natural Convergence to secure their initial funding by quickly creating prototypes and building Alpha and Beta releases of their product.

bitHeads continues to be an integral part of the development team for Natural Convergence as the company moves forward with the creation of the first release of their product.

5.3 **Canada Post Corporation (ROSS Point of Sale System)**

Canada Post Corporation (CPC) is a Canadian Crown Corporation with a mandate to provide innovative physical and electronic delivery solutions to all Canadians.

bitHeads' relationship with Canada Post began in 1996, when we were asked to provide a team to develop CPC's new Point of Sale system, the Retail Outlet Service System (ROSS).

For three years, **bitHeads** provided the core development team for the creation of ROSS, Canada Post's next generation counter automation solution. Partnered with Canada Post's corporate systems integrators, **bitHeads** had as many as ten people working on the project in a variety of roles, including Software Development Management, System Design and Quality Control.

Canada Post's existing Retail Point of Sale system (RPOS) had been in place for over 10 years, and was becoming extremely costly to maintain and extend. The Y2K issue, proprietary hardware, and performance issues were among some of CPC's other major concerns with the old software.

The **bitHeads** development team designed a flexible architecture that would meet both present and future business needs and maximize the opportunity for parallel development.

This architectural emphasis allowed the team to bring in additional developers after the elaboration iterations, doubling the size of the development team.

This solution allowed the team to hit its Version 1.0 target date of July 7, 1997 - only nine months after design had begun; seven days later, the software was piloted in the first corporate outlet.

Since then, ROSS has been extended steadily. Its most recent release is Version 8.2, which has been deployed in over 1700 of CPC's automated corporate and franchise outlets across Canada. Canada Post International is currently selling the application to the postal corporations of several countries.

The success of the ROSS project has led to an ongoing relationship with Canada Post and Canada Post International.

The technologies that were used on the ROSS project include:

- A customized version of the Rational Unified Process for software development
- Visual Basic
- C/C++, COM
- Oracle
- Sybase SQLAnywhere
- Windows NT 4.0
- BEA TOP END

In addition to its leadership role on the ROSS project, **bitHeads** has played an integral part in the following CPC projects:

- CA - a connected desktop application for parcel delivery
- ROMS - an enterprise desktop application for managing CPC's corporate outlets
- eSOM - an e-commerce application for automating bulk mail transactions
- ROSS International ports
- RSC/RSA – replacement of all CPC legacy systems with SAP software

5.4 CPC PDO (Design and Code Auditing)

In addition to the ROSS project mentioned above, **bitHeads** provides auditing services for Canada Post's Project Delivery Office (PDO). This ensures that all major Canada Post projects are developed using proper development processes and system architecture, ensuring the delivery of high-quality systems.

5.5 Canada Post International (customizable version of point-of-sale system)

Canada Post International is part of the Canada Post Group of Companies. **bitHeads'** relationship with Canada Post began in 1996, when we were asked to provide a team to develop CPC's new Point of Sale system, the Retail Outlet Service System (ROSS).

bitHeads was asked in 2002 to develop a version of the ROSS system that could easily be customized and localized for deployment in countries around the world. The resulting version of ROSS was initially dubbed iROSS. The ongoing product is now known as iPOS, and has been successfully been deployed for use by the national postal authority in Kenya, Lebanon, and Netherlands-Antilles.

bitHeads provides on-going end-to-end software development services for the iPOS product, including software customization/extensions, and localization for all new countries. **bitHeads** also provides project management, software development management, business analysis, software development, and quality control for the product.

The technologies that were used on the ROSS project include:

A customized version of the Rational Unified Process for software development

- Visual Basic
- C/C++, COM
- Java
- Oracle 9i
- Sybase SQLAnywhere
- Windows 2000
- XML, SOAP, webMethods GLUE web services

bitHeads continues to provide development and support services to Canada Post International and its clients.

5.6 BelAir Networks (Embedded Systems Development)

BelAir Networks is focused on Wireless Local Area Networks (WLANs) and the freedom of access they promise. BelAir Networks solutions combine the best of WLAN and cellular technologies to overcome the limitations associated with traditional WLANs.

bitHeads has been involved with BelAir Networks since 2003 when we were asked to assist in the design and development with BelAir's flagship BA200 product. Since then, **bitHeads** has worked with both the hardware and software groups at BelAir on multiple releases of the BA200 and in the design of the follow-on BA-100 product.

As part of BelAir development team, **bitHeads** designed and implemented network management support in BA200 via SNMP, web interface, and command-line interface. In addition, **bitHeads** was responsible for debugging device drivers for the hardware group.

The technologies used at BelAir include:

- Linux
- C/C++
- FutureSoft network stack
- HP OpenView

bitHeads continues to provide on-demand development services to BelAir Networks.

5.7 Society of Obstetricians and Gynecologists of Canada (CD and web-based educational tools)

The Society of Obstetricians and Gynaecologists of Canada (SOGC) is an award-winning medical society, recognized for the excellence of its consumer education programs and resources. The SOGC promotes optimal reproductive health care for all Canadians and informed choice in a wide range of medical and public education venues.

bitHeads has worked with SOGC on several occasions, first in the creation of new education products, and later, performing enhancements to these products.

The first project, the Managing Obstetrical Risk Efficiently (MORE) program, involved the creation of a CDROM based tool for delivery of content, and a web-based tool for online tracking of progress and test scores. MORE integrates labor and delivery clinical core content with reflective learning and practice modification tools to improve patient care and reduce clinical error, adverse events and liability costs.

The second project, the Continuing Professional Development (CPD) program, integrates clinical core content with reflective learning and practice modification tools to improve patient care and reduce clinical error, adverse events and liability costs. It consists of a web-based tool for online tracking delivery of core content and self-testing and evaluation modules.

bitHeads continued its good relationship with SOGC when enhancements were required to the existing MORE tool.

5.8 Provance Technologies (Web-based assetOutlook Development)

Provance is a privately-owned, Canadian-based software company founded in 1997 by acknowledged IT seat management experts in direct response to customer demand for more competent, flexible, and cost-efficient seat management solutions. Provance helps IT Outsourcing Service Providers increase operating margins, improve customer satisfaction and win more business. assetOutlook(TM) from Provance is an IT asset management software

solution that optimizes asset life-cycle management, improves compliance with complex Service Level Agreements, reduces costs, and improves billable activity tracking.

bitHeads has been working with Provance since 1999. In that time, **bitHeads** has advised Provance on emerging technologies (such re-architecting their current applications to Java), .NET and others as well as providing development assistance.

bitHeads provided key architectural consulting services to Provance to aid in evaluating and recommending development technologies to be used in the updated architectural designs of their new web-based version of assetOutlook(TM).

Additionally, **bitHeads** has supplied Provance with database, programming and reporting assistance in furthering the development of the new application.

bitHeads has provided services based on several technologies, including:

- Oracle
- Sybase SQLAnywhere
- Microsoft SQL Server
- C++
- Java
- Visual Basic
- IIS
- WebLogic
- Apache/Tomcat
- ASP
- JSP
- Servlets
- HTTP
- XML
- SOAP
- COM+

bitHeads continues to provide consulting services to Provance Technologies.

5.9 AirRoamer Inc. (Wireless Authentication Development)

AirRoamer Inc. was formed in March 2003 and is a privately held firm with offices in Ottawa and Toronto. AirRoamer's Courtesy Access enables businesses to provide their visitors with

simple and intuitive wireless access to the internet, while increasing the security of their internal network, and avoiding effort of managing visitor access.

bitHeads designed, built, tested and deployed the Courtesy Access product, which allows AirRoamer's customers the ability to provide wireless Internet access with full authentication provided by Courtesy Access. Customer sites can distribute pre-defined credentials to the end users, or accounts can be created automatically with the passwords being sent to the end-user's cell phones via SMS messaging.

Included in the solution was the design and creation of a web-based administrative portal that allows AirRoamer to administer their customers and monitor system activity.

An additional application was also developed to extend the capabilities of a standard RADIUS server, allowing for the automatic provisioning of end users, as well as automatic management of accounts and passwords.

The technologies used in this project included:

- RADIUS
- MySQL
- Java
- Tapestry
- Tomcat
- HTML
- JSP

Courtesy Access went into production August 1, 2004. **bitHeads** maintains an ongoing working relationship with AirRoamer, and is currently working on enhancements to the Courtesy Access product.

5.10 IBM/Rational Technology Mentoring

Rational Software Corporation is the world leader in software development tools and associated development technologies. They provide tools that cover all aspects of the development lifecycle including modeling, requirements gathering, coding, testing, source control, and change management. They have also developed a respected methodology (the Rational Unified Process, or RUP) that applies iterative development techniques to software development; RUP suggests best practices for using Rational's development tools but can also be used independently. Rational developed many of the early concepts of the Unified Modeling Language (UML) and still provide leadership in UML evolution.

bitHeads has been a certified members of the Rational Unified Solutions Provider program since 1997. As such, **bitHeads** has access to the complete suite of Rational development tools, methodologies, courses and technologies.

As a service and development partner company of Rational Software Corporation (and previously with ObjecTime Ltd., purchased by Rational in 1999), **bitHeads** has built a pool of senior consultants with expertise in several of Rational's technologies. We have world-class expertise in Rational Rose/Rose RealTime, ObjecTime Developer, Rational Test RealTime and the Rational Unified Process (RUP). Over this longstanding partnership, **bitHeads** has been delivering services at all levels to help customers maximize the value of Rational's tools and achieve success. Consulting engagements have included technology mentoring, technology power-up assistance, development assistance, architectural consulting and OS target porting for a variety of companies throughout North America and Europe.

In addition, **bitHeads** has used ObjecTime and Rational Software tools for in-house development of key aspects of our client's applications. This gives us a deep, "hands-on", understanding of toolset usage heuristics and efficient technology application strategies.

As object-oriented consultants for both Rational and ObjecTime, **bitHeads** employees are responsible for:

- Organizing object-oriented software development projects
- Planning and scheduling object-oriented software projects
- Performing architecture reviews
- Analyzing requirements and developing initial designs to jump-start projects
- Providing training on object-oriented design and implementation as well as assisting in the creation of the training materials themselves
- Porting/customization of the Rational Rose Real-Time and ObjecTime Developer run time systems
- Migrating ObjecTime Developer applications to Rational Rose RealTime
- Providing extensions (via the RoseRT Extensibility Interface) to automate complex, time consuming tasks on large models

bitHeads has performed well over 100 consulting engagements of ObjecTime and Rational consulting services for dozens of companies worldwide, including:

- 3Com Corporation
- ADA
- ADC
- Bay Networks
- DSC
- Ericsson
- Fujitsu
- General Electric

- HardDollar Corporation
- Informio Corporation
- Kodak
- Lucent Technologies
- Motorola
- Versatel
- World Access

bitHeads continues to provide consulting services within the Rational Unified Partner Program and to provide leadership in the development of usage strategies for Rational's technologies.

5.11 Informio (Voice Web Infrastructure)

Informio has developed a voice Web infrastructure service, which allows organizations to extend their Internet presence to mobile devices using audio and voice technologies. Informio's customers are able to provide effortless access to, and interaction with, their Internet or corporate intranet applications from any telephone, anywhere and at any time.

Informio is deploying a global, distributed, POP-based architecture to bridge the gap between the open Internet and the historically proprietary telephone network. Informio's network of Unified Media Browsers provides Internet access and VoiceXML-based browsing capability for any telephone. By deploying the Unified Media Browsers in a distributed manner throughout the world, Informio achieves performance and cost advantages, including improved voice and signal quality, local caching of Internet content and elimination of telephone network backhaul.

With the massive proliferation of mobile telephones and a familiar audio interface to the Internet, the voice Web has unlimited potential. Informio's infrastructure provides the missing elements necessary to transform this potential into a reality – global Internet-based access, VoiceXML browsing capability and high performance content distribution.

bitHeads has been involved with Informio since it was founded in October 1999. bitHeads provided approximately 50% of the development team of the Informio Internet access framework. To ensure the success of Informio, bitHeads has:

- Established the software development and delivery process that is currently in place at Informio
- Helped define the requirements of the Informio product
- Chose many of the technologies that were used for the development of the product
- Designed and developed core components of the Unified Media Browser, the HTML administration tools, and the XML/database engine that enables voice applications to be quickly and easily written using the Informio framework

- Developed many of the web voice applications that run on the Informio framework

A wide variety of technologies was used to develop the Informio framework. The underlying database is Oracle 8i. An API to interface to the database was written in Java, using XML as a basis for data transfer from the database to the calling applications. JSP was used to develop the browser based administration and configuration tools. The voice applications were typically written as Java Servlets or Perl applications. They used VoiceXML as the basis of converting data into a format recognized by the Unified Media Browser. The H.323 interfaces, which allow the phones to interface with the system, were written in C++.

5.12 HardDollar Corporation (Web-based Application Development Framework)

HardDollar is a fifteen year-old company that has recently refocused their product offerings and their direction on the Internet. bitHeads, inc. has been working with HardDollar for the past year helping them build a B2B e-commerce site that incorporates their existing products and technologies as well as many new product offerings that will only be available through their website. **bitHeads** has been involved in all aspects of HardDollar's move to the Internet including:

- Helping them to secure venture capital (VC) funding for the project
- Introducing a software development process that had the right level of detail for the project
- Providing technical guidance on the tools and technologies that were best suited to the project
- Analyzing and documenting the requirements for the new software
- Building an application framework upon which the HardDollar applications were built.

The technologies that were used on the HardDollar project include:

- A customized version of the Rational Unified Process for software development
- J2EE (Servlets, Enterprise Java Beans)
- XML
- TOPLink
- Oracle 8i
- JReports
- BEA WebLogic.

5.13 Versatel Networks (Mesoware Port to Solaris)

Versatel Networks (Versatel) is a spin-off from CML Technologies Inc., a leading supplier of telecom switching systems for the Enhanced 9-1-1, Mobile Radio Dispatch and Air Traffic

Control markets. Versatel's new platform product, the TotalAgility™ Platform (TAP), is built for next-generation telephony applications that require extremely versatile, reliable and open platforms.

bitHeads' relationship with Versatel began in 2001, when we were asked to port their existing Mesoware application from WindowsNT to Solaris.

bitHeads, inc. ported the TAP to the Sun Solaris platform to allow Versatel to expand their customer base. Porting activities include replacing the database, inter-process communication and clustering components so that the product can continue to support both the Microsoft and Solaris platforms.

Additionally, **bitHeads** created a cross-compilation environment and enabled its use from within the ObjecTime Developer CASE tool.

The software was ported using the following technologies:

- ObjecTime Developer 5.2.1
- C/C++
- MFC
- gcc 2.8.1
- Sybase SQLAnywhere

bitHeads continues to provide consulting services to Versatel.

5.14 Cadmian Inc. (Mobile/Wireless Courseware Development)

Cadmian Inc. is Instructional Design and Educational Measurement Consulting company with experience in courseware design, training management, training evaluation, instructor certification, certification exam development, and training delivery.

bitHeads was enlisted to assist in the creation of several mobile & wireless courses for Sun Microsystems.

5.15 Canadian Association of General Surgeons (PDA medical application)

The Canadian Association of General Surgeons (CAGS), created in 1977, is mandated to assist all General Surgeons in a life long process of continuing education, to facilitate and promote surgical research, and to develop policies and new ideas in the areas of clinical care, education and research.

bitHeads, inc was responsible for building an information gathering application that featured a Palm based interface, a desktop reporting application and a central repository. The application is called the Canadian Advanced Endoscopic Surgery Registry (CAESaR).

The technologies used on the CAESaR project included:

- Java
- Java Server Pages (JSP)
- HTML
- SQL Server 2000
- Satellite Forms
- Visual Basic
- Crystal Reports
- SOAP
- XML

In November 2003, Version 1.0 of the software was released to the market. The product was delivered on time and on budget after 4 month of development.

5.16 Domtar Inc. (Remote Timesheet Entry System)

Domtar is the third largest producer of uncoated freesheet paper in North America. It is also a leading manufacturer of business papers, commercial printing and publication papers, and technical and specialty papers. Domtar manages according to internationally recognized standards, 22 million acres of forestland in Canada and the United States, and produces lumber and other wood products. Domtar has 12,000 employees across North America. The Company also has a 50% investment interest in Norampac Inc., the largest Canadian producer of containerboard.

Domtar asked **bitHeads** to create a next-generation SRP tool to allow forestry supervisors a quick and easy way to efficiently enter timesheet information for employees and machines out in the field.

bitHeads designed, built, tested and deployed a PocketPC-based product to allow forestry supervisors the ability to enter, maintain and transfer employee and machine time entry records from the field. This included the design and creation of a PocketPC-based client application for supervisors to utilize while off-site, and a PC-based server application running at one of Domtar's processing facilities.

The PocketPC client application interface was based on the UI of the existing PC-based data entry system. The screens were created to closely mimic the existing desktop application while respecting the limited screen size and operational restrictions of a handheld device.

The client supports synchronization with the PC-based server system via modem, USB/serial cradle, or through a wireless network device.

The server application is capable of communicating with multiple handheld client devices as well as maintaining an on-demand connection to the central CRM server.

The server application makes Domtar's corporate labor information from the central CRM server available to the PocketPC upon synchronization, and retrieves and formats the employee and machine time entry records from the client and sends them back to the central CRM server.

The technologies that were used on this project include:

- Microsoft eMbedded VisualBasic 3.0
- PocketPC 2002
- Microsoft Visual Basic
- Microsoft Windows 2000
- InstallShield 5.5

bitHeads continues to investigate ways to assist Domtar in simplifying and automating their SRP requirements on the PocketPC platform.

5.17 LashBack (Outlook Express Application Integration)

LashBack LLC was formed in 2003 to identify, develop and patent new technologies and processes that enhance the online experience by offering consumers the ability to make and enforce their choices about what they wish and do not wish to experience online. Its solutions allow its customers to experience the Internet with increased control, efficiency and security.

LashBack developed an anti-spam plug-in for Outlook (which has a documented plug-in architecture), and wanted to provide similar functionality for Outlook Express users. However, the fact that Outlook Express does not have a supported plug-in architecture presented them with a challenge.

They turned to **bitHeads**, which has the necessary expertise in Windows application development, Microsoft .NET, SOAP and low-level Windows system development to solve their problem.

bitHeads developed key technology components for LashBack to allow for easy integration of their anti-spam solution with Outlook Express.

The technologies that were used on the LashBack project include:

- Microsoft .NET (VB.NET)
- SOAP
- C/C++
- Windows 2000 / XP

LashBack released the beta release of their Outlook Express plug-in in April 2004.

5.18 INSITE Family Medicine (TestVu Palm Application)

INSITE-Family Medicine, Inc. is an Ottawa-based company specializing in the development of clinical software tools. The mission of INSITE-Family Medicine is to develop and market innovative software solutions to help clinicians practice better and more cost-effective medicine, and to promote the accurate measurement of primary care.

Of the triad of software products which INSITE-FM created, **bitHeads, inc.** was asked to port the existing stand-alone, runtime application, Promptor-FM, a computerized prompting system for laboratory test ordering, to Palm's handheld device platforms.

bitHeads designed, built, tested and deployed a PalmOS-based version of their product. This included the recreation of the application from scratch for the PalmOS, the creation and reorganization of the screens to fit a handheld device, online help, a user manual, an install application and consideration of other concerns necessary for porting or extending an application from the desktop to the handheld device.

The technologies that were used on this project include:

- Satellite Forms
- CodeWarror C++
- PalmOS 3.0++

bitHeads continues to investigate ways to assist INSITE-FM in bringing their medical knowledge to new areas.

5.19 Innovapost (web-enabled Retail Service Platform)

Created in May 2002, Innovapost Inc. is jointly owned by Canada Post Corporation and CGI Group Inc. Innovapost is pleased to also have Accenture as a preferred shareholder. Innovapost provides IS/IT services, including eBusiness solutions, to the Canada Post group of companies and to postal organizations worldwide.

In 2003, Innovapost proposed a new initiative to Canada Post that would integrate third party services with Canada Post's Point of Sale system, via a central web services broker, the Retail Services Platform (RSP).

Innovapost called on **bitHeads**, with our vast expertise in Point-of-Sale systems, web application and web services development, to lead the development of the new platform, and implement the first service, MoneyGram.

bitHeads provided end-to-end software development services to develop the new platform while working together with key Innovapost resources. **bitHeads** was responsible for requirements analysis, architectural design, detailed design, development, quality control and the management of the overall team, including several Innovapost resources.

The new platform was released on time in April 2004, and successfully deployed in 1000 outlets across Canada. The system is currently responsible for millions of dollars in transactions a month.

The technologies that were used on the RSP project include:

- bitHeads accelerated development process
- Java, JSP
- Microsoft SQL Server
- Windows 2000
- XML, SOAP, webMethods GLUE web services

bitHeads continues to provide development, management and support services to Innovapost.

5.20 CCRA (Customized RUP)

The Canada Customs and Revenue Agency (CCRA) are in the process of adopting the Rational Unified Process (RUP) as the standard development methodology for all software development within CCRA. The Rational Unified Process is a large body of process knowledge, reference and templates that can be applied to a wide variety of development projects across many technical and business domains. As such, it cannot be used “as-is” – it is generally customized for each individual development project.

The Information Technology Branch of Canada Customs and Revenue Agency contracted the services of **bitHeads, inc.** to assist in the creation of a standard customized version of RUP to be used for all projects. The primary objective of this project was to create a custom Development Case, that would be used as the basis for defining the minimum set of artifacts that are to be created for each project.

bitHeads is very knowledgeable with RUP, and has a vast amount of experience in the customization of RUP. **bitHeads** provided the services of a Senior Architect and a Software Development Manager to review the existing processes and artifacts at CCRA and to provide guidance in defining a set of artifacts and processes as defined by RUP. Working closely with the Project Management & Application Architecture and Best Practices & Architecture, Solutions teams, **bitHeads** produced a custom version of the RUP Development Case that will be used as a baseline template for future projects at CCRA.

5.21 Health Canada (RRTD Feasibility Study)

In the Health Products and Food Branch (HPFB) of Health Canada, there are at least eleven (11) different records tracking systems that are being used to record and track the content, location, and status of various paper files and the corresponding processes that use the files.

This has resulted in a number of problems with the existing records tracking systems:

- The data is scattered over a number of sections in Health Canada, it is not accessible or sharable between groups, there is no standard content and format, and it is being maintained in multiple systems.
- Personnel cannot easily be shared or transferred between groups, as all the records tracking systems are different and therefore require a learning curve to become proficient in their use.
- Existing records tracking systems are in many cases very old technology which makes them very difficult and costly to modify, and difficult and costly to use (e.g. cumbersome and non-intuitive to learn and use).
- None of these systems maintains all the required information.

Health Canada contracted **bitHeads** to perform an analysis/feasibility study of the cost impact of developing a web-based Records Registry & Tracking Database (RRTD) for managing the inventory of health records throughout their lifecycle, regardless of the physical media type format, in the Health Products and Food Branch (HPFB).

In addition to the feasibility study, **bitHeads** also delivered a statement of work (SOW) for the complete implementation of the RRTD that could be included in a Health Canada request for proposal.

6 Client Roster for bitHeads, inc.

Our worldwide clients include:

- 3Com Corporation (formerly NBX)
- ADA
- ADC
- Agriculture and Agri-Foods Canada
- AirRoamer
- Alcea Technologies Inc.
- Andersen Consulting
- AT Telecommunications
- AT Uruguay
- Bay Networks
- BEA/WebLogic
- BelAir Networks
- Cadmian
- Canada Customs and Revenue Agency
- Canada Post Corporation
- Canada Post International Limited
- Canadian Association of General Surgeons
- Ciena Corporation
- Compaq (formerly Digital Equipment)
- Consulting and Audit Canada
- Davis Engineering
- Department of Justice Canada
- DMR
- Domtar
- DSC
- Ericsson
- Fujitsu
- General Electric
- Gomez
- HardDollar Corporation
- Health Canada
- Hummingbird/PCDocs
- IBM
- Informio Corporation
- Innovapost Corporation
- INSITE – Family Medicine
- Intuit Canada
- JetForm
- Kodak
- lashback
- Lucent Technologies
- Motorola
- NCR
- Natural Convergence
- Newbridge
- Nortel Networks
- ObjecTime Limited
- Provance
- PSR Group Limited
- Rational Software Corporation
- The Society of Obstetricians and Gynaecologists of Canada
- The Object People

- Timepiece Technologies Corporation
- Time iCR
- Wireless Edge
- World Access
- Versatel Networks