
BTECH 450DT 2003

Computers New Zealand:
Mid-Semester Report

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Abstract

This report provides an outline of the project I am currently undertaking, along with Vincent Yee and Chris Chou, for Computers New Zealand (CNZ) under the supervision of TN Chan. The first section of the report gives an outline of the actual project including the objectives, learning scope and deliverables. It also provides a brief background of CNZ and myself.

The report details the first part of the project in which we were acting as part of the Research and Development team for CNZ, collecting & collating information and writing discussion papers for reference within the company structure. The final versions of these discussion papers are included in the appendices section of the report.

The second part of the report contains further information relating to the actual implementation of the CNZ Knowledge base, as a continuation of work done by the previous years BTech project team. It provides details of the current state of the Knowledge base and related documentation, work completed to-date as well as future modifications that we aim to complete during the second phase of our project.

Also included in the report is an account of the practical skills and knowledge I have learnt during the project so far, as well as previous knowledge we have gained at University and were able to apply to the project.

Personal Profile

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Degree: BTech(IT)

Papers completed to-date:

?? PHYSICS 120, 150, 243
?? MATHS 108, 162, 208
? ?STATS 107
? ?INFOSYS 110, 222, 224, 329
? ?ACCNTG 101
? ?COMPSCI 101, 105, 210, 220, 230, 314, 335, 375

Papers currently enrolled in:

?? COMPSCI 708, 742
?? SCIGEN 201
?? BTECH 450 A & B
?? INFOSYS 339
?? PHIL 101

I chose this BTech project as I believe it will give me the opportunity to apply my theoretical knowledge gained over the last 3 years of my BTech degree at The University of Auckland. Throughout the duration of the project I hope to gain invaluable industry experience and learn and develop skills relating to project management and working in a team environment.

Company Profile



Computers New Zealand is a total information solutions provider with skills and capabilities to implement information and automation systems for meeting clients' business objectives and increasing their productivity and competitiveness.

Started in 1997, CNZ is a conglomerate of IT companies and practitioners in New Zealand. The company has a strong reputation and is known as being the only engineering-based computer company in New Zealand. The CNZ group is directed and managed by principles who each have more than 10 years of experience within the information technology industry. As a result, many IT or PC service providers are looking to CNZ as the source of knowledge and the vehicle for technology development. Clients already served include large corporations, local governments, down to small business and home-based business operations.

The founding member, Compucon New Zealand, is well known in the industry for its vigorous quality management approach for computer system production. The company has achieved ISO-9002 quality management standard since 1995. Compucon and CNZ believe that IT practitioners should take the same approach in providing IT solutions for clients in an increasingly complex IT market. More recently, the company has started developing high-tech solutions to complement the range of system hardware. In 2001 CNZ worked in partnership with Internet Service Provider NZNet to offer a Linux based firewall and mail server. Since 2002 the company has also been working with a software developer on an integrated business application database.

CNZ maintains a standard set of operational policies and procedures for activities including proposal, consultancy, order processing, product sourcing, servicing, delivery, documentation and warranty claim handling. All members are committed to zero mistakes within a strict QA Management programme. The Group maintains a code of ethics prescribing total dedication of service, honesty and openness with clients and colleagues, and a positive contribution to society at large.

Challenges undertaken by the group for clients include:

- o migrating to new platforms
- o aligning IT to business
- o reducing costs of ownership
- o keeping abreast of IT developments
- o develop effective IT investments
- o manage distributed data
- o manage vendors and suppliers

Products & Services offered include:

- ?? Full Consultancy - review of client workflow structure, appraisal of existing information systems, planning of platform installation or migration, preparation of IT policies and procedures.
- ?? Solution Provision - customized information technology solutions from conception to turnkey delivery to staff training.
- ?? Full Liaison - a single channel for the supply of IT equipment and services including file servers, desktops, vendor installation, facility management, usage audits, on-site support and staff training.

Project Objectives

Project Details

Project Period:	Mid Feb 2003 - 26 Oct 2003
Workload:	10 hours per week
Work Allocation:	Each student will take up one technology scope and be involved jointly in other work areas

The company wishes to establish the infrastructure and content of an engineering and information technology knowledge base. The infrastructure refers to a framework that will identify, develop if appropriate and accumulate:

- (a) relevant technical expertise and know-how
- (b) state of the art of technology applications in New Zealand
- (c) procedures for handling system integration and implementation projects

The project consists of 2 main areas; Research & Development and Knowledge base implementation.

In the Research & Development phase of the project we are required to apply and refine the researching and report writing we have been taught at University to write up discussion papers on various topics. These papers will be used at a later date within the Knowledge base.

In the Knowledge base implementation phase we are required to assess and document the current status of the KB and use this to determine what further work is required to complete the project started by the 2002 team. This will involve applying the practical and theoretical programming skills we have learnt over the last 3 years at University.

Scope of Learning Topics

<i>Technical:</i>	System architectures such as iA32 and iA64 System platforms such as Springdale and Grand Champion CPU such as P4 Northwood and AMD Hammer System Redundancy and Clustering Power User Computing platforms Data communication such as IEEE 802.11x and 1394 Mobile standards such as CDMA and 3G Internet access and security such as WEP LAN/WAN such as Active Directory and LDAP Windows 2000 and .NET Linux kernels and distributions Database development based on Open Source products Software programming and scripting Web Services components including XML System integration and interfacing design
<i>Commercial:</i>	The IT and engineering market Value adding concept and vertical solutions Worldwide technology developments Business models such as ASP (application service provider)
<i>Management:</i>	Time scheduling and control Specification control and Quality assurance Contracting and Cost control Human resource organization

Project Deliverables

Expected deliverables for the CNZ BTech project 2003 include:

- ?? Business Management QA Manual
- ?? Project Management QA Manual
- ?? Web Site for Public Reference (restricted access)
- ?? Knowledge Database of Technology Disciplines
- ?? Database of Potential Customers
- ?? Research Reports
- ?? Industry Channel Presentation Slides

Research & Development

The first phase of the project involved acting as part of the Research & Development team for CNZ. The aim was to provide reliable and useful information on various areas in Information Technology, so that it could be used for future reference both within the company and with clients.

Each of us three group members were assigned a certain technology area, for Vincent it was networking & communications, Chris was assigned hardware platforms and myself, software. The topics, on which we were required to research and report, were determined by TN Chan and discussed at our weekly meetings. The objective was to understand what the technology was about, how it fits in with other complementary and competing technology and provide evidence of its promise. This was done from the perspective of an IT consultant to enable us to recommend the most appropriate technology to meet customers' requirements. We collected and collated information from various sources and produced reports, refining them as necessary until they were at a certain level of reliability and professionalism. This was a very beneficial task as we were able apply the research and report writing skills we had learnt at University, and further refine them during the process. We were also encouraged to provide an account of the sources from which we acquired information and to rate these sources in terms of our perception of their reliability.

The reports will eventually be used to populate knowledge base once the second stage of the project has been completed.

The following gives a brief outline of the topics I have researched to-date;

Microsoft Greenwich

Microsoft Greenwich is the latest in Real Time Communications (RTC) released by Microsoft, developed for enterprise use, to provide secure and manageable real-time communication, including instant messaging, video conferencing and voice communication. Greenwich was created to be a secure, manageable enterprise Instant messaging solution out of the box and also as an extensible, standards based, real-time communications platform.

Benefits of the Greenwich platform include:

- Presence based functionality
- Integration with MSN Messenger Connect for Enterprise service
- Strong end-to-end communications based on industry standards
- Easy administration based on industry standard technologies and familiar Windows based tools
- Platform that includes data collaboration, voice, video and allows for future communications applications
- Capabilities for logging and archiving instant messaging conversations for regulatory compliance

Jabber Instant Messaging

Jabber is an open source XML protocol for the real time exchange of messages and presence between any two points on the Internet. The main advantage of Jabber is its interoperability between other IM systems, such as AIM, MSN, ICQ and Yahoo. This is achieved by the Jabber protocol 'masquerading' as the foreign protocol, acting as a translator between the two systems and providing seamless integration at the user level. The XML platform is the basis for peer-to-peer collaboration, creating the interface for sharing enterprise computing resources in the P2P environment. This is done through the combination of XML and Simple API for XML (SAX) to create a way in which to pass data and call remote processes.

Jabber advantages over legacy Instant Messaging systems include:

- Open: the Jabber protocol is free, open, public, and easily understandable, and multiple open-source implementations exist for Jabber servers, clients, and development libraries.

- Extensible: using the power of XML namespaces, anyone can extend the Jabber protocol for custom functionality
- Decentralized: anyone can run their own Jabber server, enabling individuals and organizations to take control of their IM experience.
- Secure: any Jabber server may be isolated from the public Jabber network, many server implementations use SSL for client-server communications

Windows XP Deployment Site

The Desktop Deployment Centre site from Microsoft has been designed to aid IT professionals in the migration to the Windows XP operating system and its partner product, Office XP. It includes various resources and tools to assist in the evaluation and deployment stages, as well as documentation and best practise advice from current users and professionals.

Tools available on the website include:

- ?? Microsoft Application Compatibility Analyzer 1.0
- ?? Windows Application Verifier 2.5
- ?? Compatibility Administrator

Linux Research

As a combined industry & technology research assignment I was given the task of researching the implementation of Linux into a small business environment. I was given the situation of a small business running a central server and 10 desktops, and required to research into implementing a business network using the open source Red Hat distribution and to also determine the skills and software required to support it. In addition to this I was also required to research the applications available to support various requirements such as file sharing, email, Internet access, accounting systems and general office productivity. The aim of this was to determine whether Red Hat Linux would be a commercially viable option for small businesses, and to provide information for users and IT professionals to make informed decisions.

Over the space of 5 weeks I have been researching this topic, and the following is a brief outline the reports created to-date and some of the information contained in them.

Benefits of Linux:

?? Lower software product costs

The software can be freely installed on an unlimited number of machines having the effect of an "unlimited-user, unlimited-installation" license.

?? Lower software support costs

Hewlett-Packard has offered unlimited, 24/7 worldwide phone and e-mail support for Linux for a fee of \$130 per month per server

?? Lower hardware costs

Another advantage of Linux is its ability to run on older machines with less memory and disk capacity, which translates into savings on hardware upgrades. Linux provides excellent performance on new hardware while still running adequately on older machines.

?? Better performance for lower cost

Tests have revealed that Linux quite consistently beats Windows NT not only on single-processor machines, but also on multi-processor machines.

?? More stable

The Unix design, which Linux shares, is a time-tested one. The open-source code model of Linux seems to ensure that bugs are detected and fixed early.

?? Excellent interoperability with other systems

Linux is widely claimed to be able to coexist with other operating systems, including the Netware environment, Macintosh, and IBM mainframes.

Weaknesses of Linux:

?? User friendliness

There are two graphical desktop environments for Linux. KDE ('K' Desktop Environment) and Gnome. Neither interface is as yet as polished and complete as the Windows or Mac desktops.

?? Installation difficulties

Even though Linux does a reasonably good job of detecting all the hardware components on a PC, it does require some enlightened input from the installer. Linux installation is getting progressively easier, with reports of Red Hat version 6.0 and later being quite simple to install.

?? *Scarce applications*

The most glaring weakness in the Linux story was the complete absence of strong database. On the desktop, Linux also has a long way to go. The applications are there, but the most important one, Microsoft Office, is not. However, there are many similar application suites available, and being developed.

?? *Unviable business solution*

Independent software developers need to target Microsoft's Windows, because it is the most popular desktop platform, but they soon face competition from Microsoft's own products.

Linux Operating Systems

Red Hat Linux Enterprise vs. Red Hat Linux 9

The most significant difference between the Red Hat Enterprise Linux package and the Red Hat Linux v9 distribution is in the support offered. Red Hat Enterprise Linux products are delivered through an annual subscription with one year of support services and access to Red Hat Enterprise Network. However, much documentation and support guides are available through the Internet from other sources, so that the Red Hat Linux 9 distribution would be a more than adequate solution in a small business network for a significantly less cost.

Linux Applications

Red Hat Linux offers tools and applications useful for any personal productivity workstation from basic e-mail and browsing to project management. During the install procedure you can choose the software packages most appropriate for your system.

Productivity applications and tools that are included in Red Hat Linux 9:

- ?? Ximian Evolution - e-mail client, browser and calendar
- ?? Open Office - office suite for creating documents, spreadsheets, and presentations.
- ?? Mozilla - Internet browser, e-mail client, and address book.
- ?? gphoto2 - photo manipulation tool
- ?? MrProject - project management software
- ?? GIMP - graphic manipulation software
- ?? Jpilot - pilot desktop software

Microsoft Windows Based Product	Cost per machine	Linux product	Cost per machine
Microsoft Windows XP	New PC: \$100 Upgrade: \$100 Professional: \$300	?? Red Hat Linux ?? Debian Linux	Red Hat download: Free Debian Linux: Free Red Hat box: \$39.99
Microsoft Office	Small Business Edition: \$200 Office Professional: \$350 - \$600	?? Open Office ?? Star Office	Open Office: Free Star Office: \$76
Microsoft Explorer	Free	?? Mozilla ?? Netscape ?? Opera ?? Konqueror	Free
Microsoft Outlook	Free	?? Evolution	Free
Microsoft Project	\$600	?? MR Project	Free
Microsoft Visio	\$200	?? Dia	Free
Adobe Photoshop	\$600	?? GIMP	Free
Adobe Acrobat	Free	?? Adobe Acrobat	Free
cuteFTP	\$40	?? IglooFTP Pro	Downloaded: free Purchased: \$30
Digital Camera	Free	?? gtkam	Free

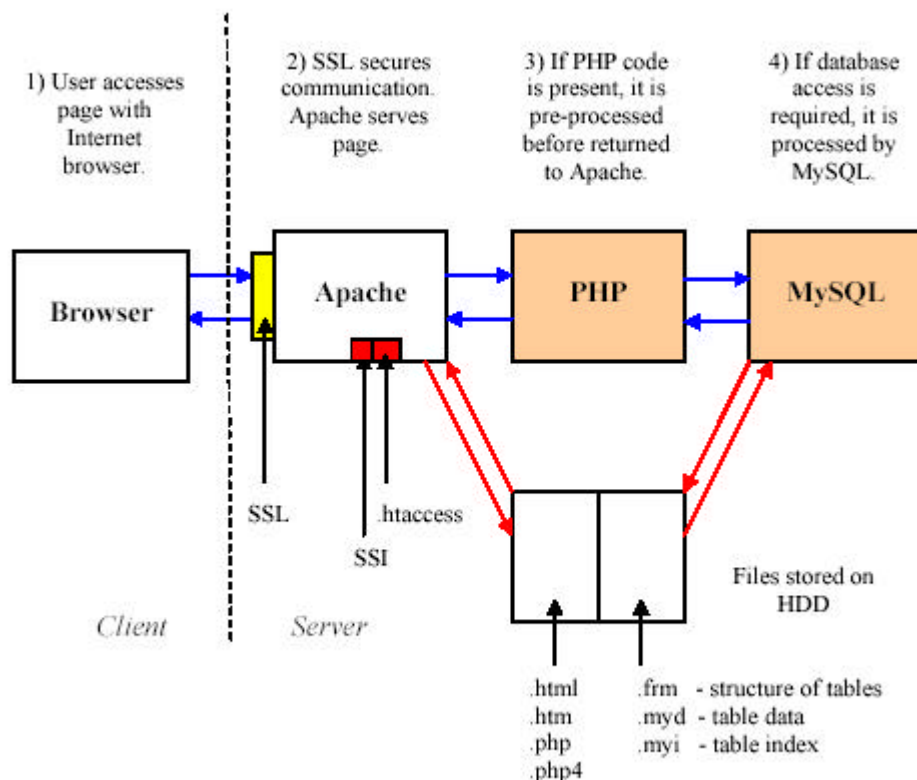
The reports I have created for the 'Linux for Small Businesses' topic include:

- ?? Linux Networking Report v0.4
- ?? Red Hat Enterprise Product Details
- ?? Red Hat Linux 9 Product Details
- ?? Hardware Compatibility List
- ?? OpenOffice for Linux
- ?? Linux Accounting Software

However these reports are still under development and I will continue to refine them until they are at a stage ready for the knowledge base.

Knowledge Base

As previously mentioned, the second part of the project involves the continuation of the Knowledge base, which was started by the BTech project team in 2002. The objective of the Knowledge base is to provide a central base in which to store and manage relevant information and resources for use by IT professionals and their clients.



The Knowledge Base consists of a MySQL based back-end database combined with an Apache based front-end web site with functionality added through the use of PHP.

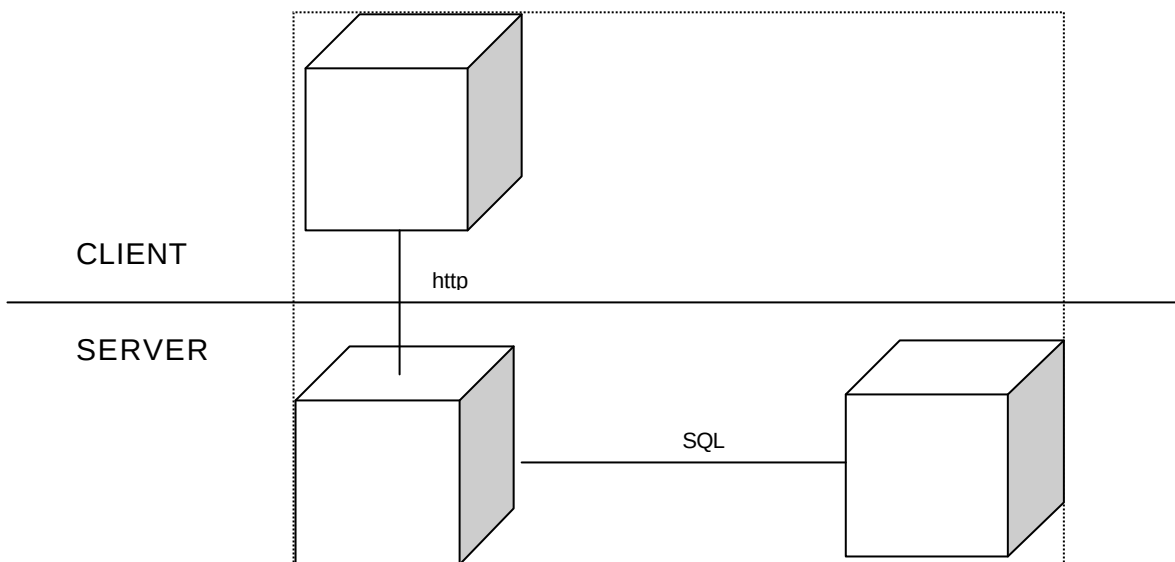
The Knowledge base consists of a MySQL based back-end database, currently using MySQL version 3.23.51, where data relating to users, projects and the company is stored. This is also where the technology reports we created in the first part of the project will eventually be stored once the knowledge base implementation is completed.

The front-end is an Apache based web site, using SSL to provide secure communication between the client and server. The Knowledge base is currently implemented using Apache version 2.0.39. Interaction between the Apache Web server and the MySQL database is provided through the use of PHP, in this particular implementation, PHP version 4.2.2.

All the files reside on an Intel Celeron 300MHz machine which is located at the ISP. The server machine is running the open source Linux Red Hat operating system version 7.3 with Kernel version 2.4.18. The original intention was to make this a completely open source project, and it has so far been achieved.

Hardware specifications of server:

- Intel Celeron 300A
- 128MB PC133 SDRAM
- Asus P2B-F
- Matrox G200 8MB
- Seagate U6 20GB
- Accton EN1207D-TX



The current implementation uses a 3 tier, client/ server style architecture, with the clients accessing the web server through their own web browsers using HTTP. As previously mentioned, the functionality to the front end is provided through the use of PHP code and the web server accesses the Relational DB using MySQL.

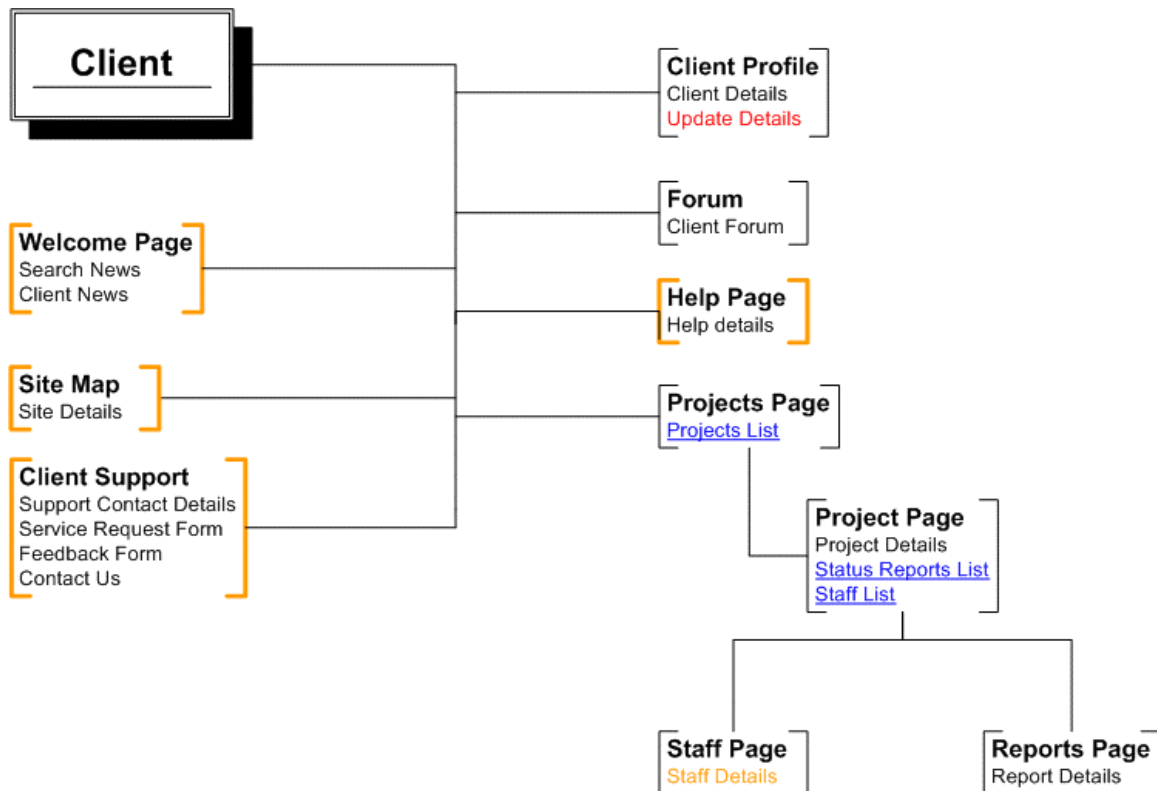
After an initial evaluation and meeting with one of the former project team members, we found the current status of the Knowledge base to be the following;

Database	Prototype complete
Site Front-end design	Prototype complete
PHP Coding	Incomplete – 50% remaining
Documentation	Incomplete – 70% remaining
Knowledge/Data	Not Started

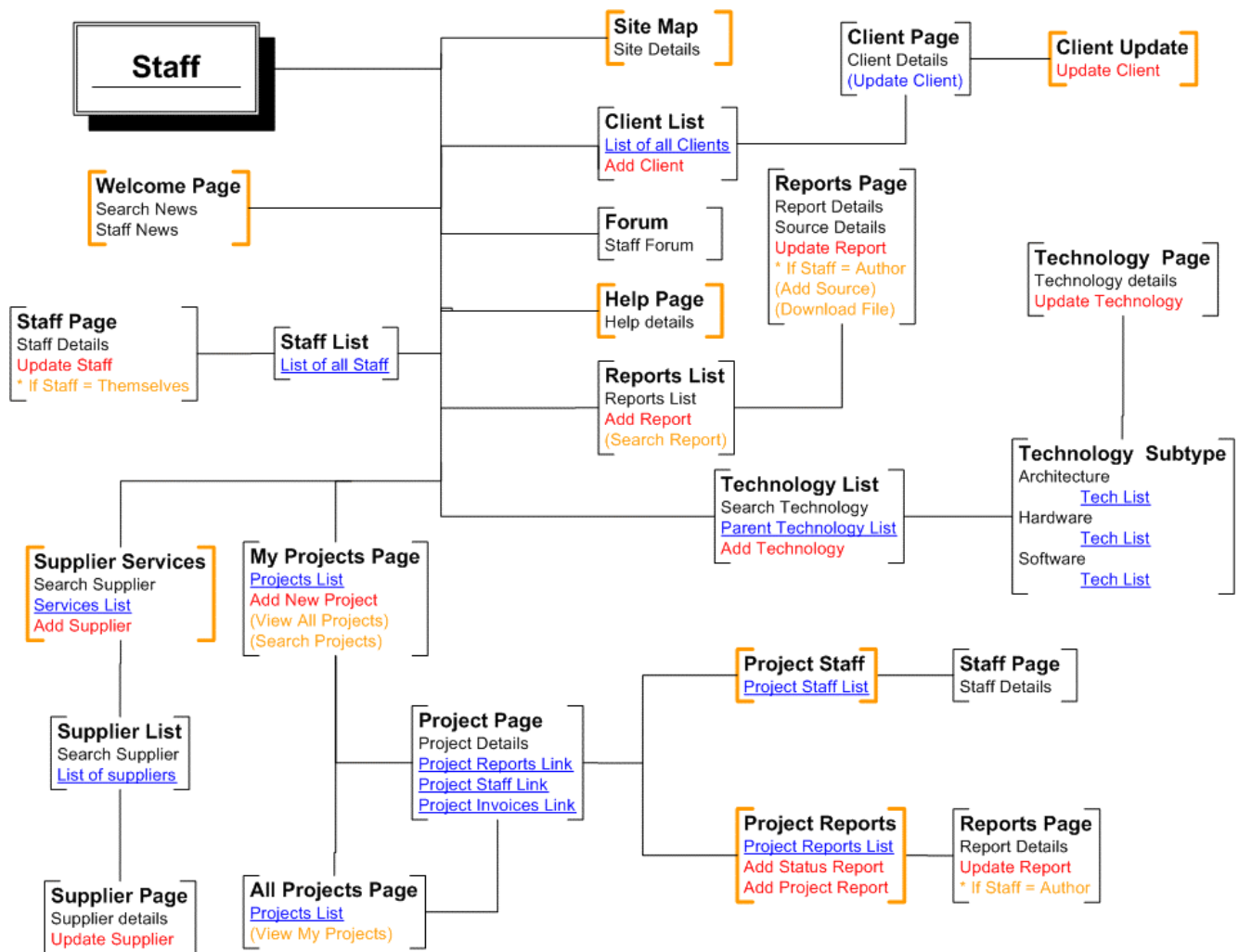
The implementation of the MySQL database and the Knowledge base front-end design was practically complete. Although it has been stated that the current implementation may require some modifications to accommodate the information intended for the Knowledge base.

Documentation is another of the main areas that needs to be addressed. Currently only the MySQL database is sufficiently documented. The PHP code has been commented appropriately, however further work will be required in documenting how the PHP pages have been coded, such that it can be easily understood and modified by other programmers as required. Documentation and help pages also need to be created to provide first time users with information on using the Knowledge base.

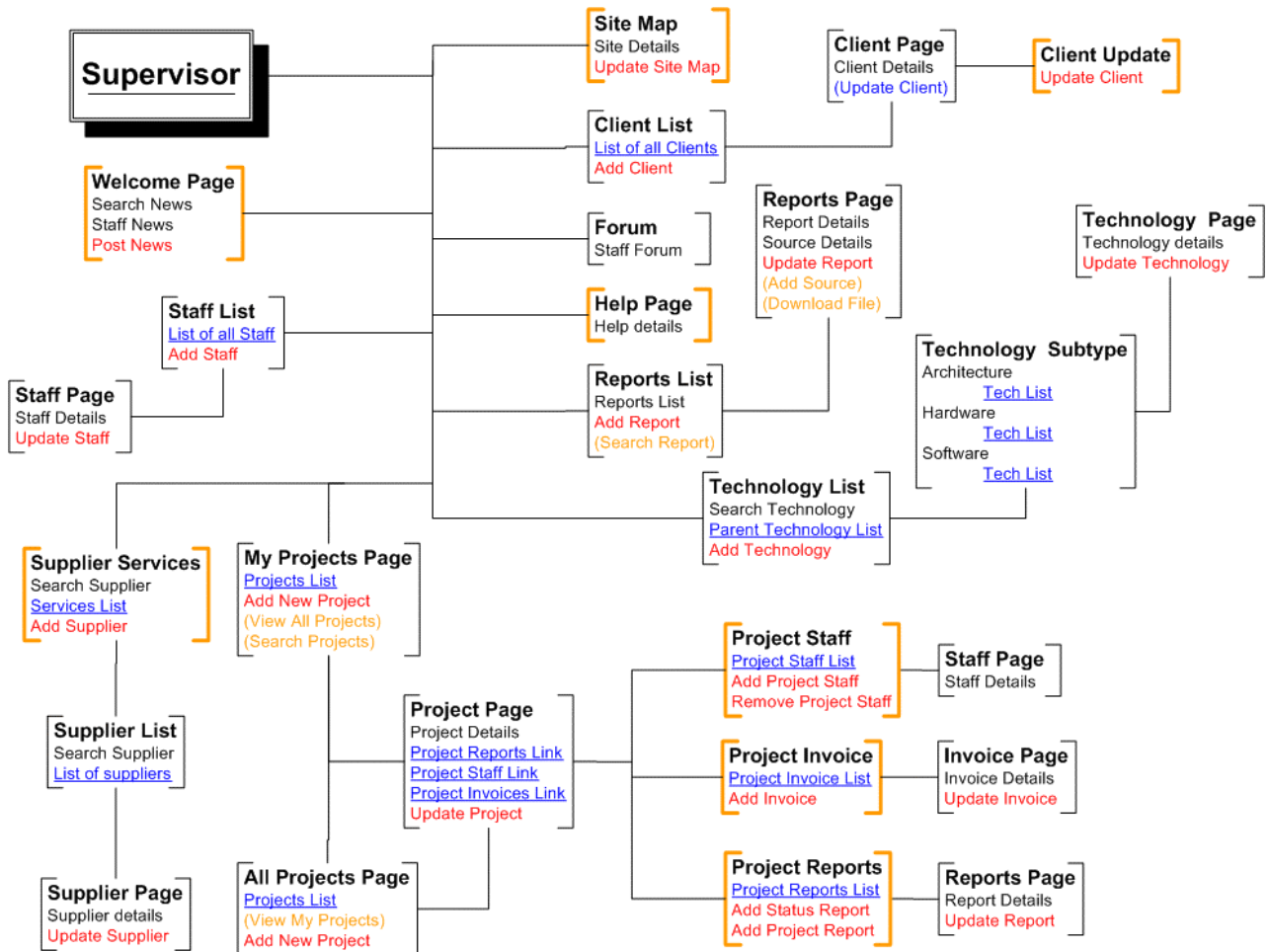
The following diagrams show the intended structure of the intranet web site and its functionalities. Pages yet to be implemented are shown in the orange brackets and functions to be implemented or changes that we have decided upon are displayed in orange text. Also included is a brief discussion of the changes we intended to make to the current KB, this will take us through the second part of the project.



For the client site we have revised the original structure so that all functions relating to Client support will be implemented in one page. The Site Map and Help pages were yet to be implemented from last year, so we will implement this for all three user-groups. We will also be adding functions for displaying and searching client news, and modifying the way in which Staff details are currently displayed. At present the staff details page allows the user to modify details, this will need to be changed so that modifications cannot be made.



For the staff interface we need to implement the site map, news and help pages as previously mentioned. We aim to continue the modular approach to coding so that the code can be reused throughout the 3 separate user interfaces. We have also decided to restructure the Projects page in order for the navigation to be more logical. Also we will need to implement some extra functionalities relating to adding and updating reports that were not quite completed by the previous team. We found we would need to create another page for supplier services to provide further separation between the different services offered.



With the Supervisor access level, we need to implement the same pages and functions as described for the staff level, again we hope to be able to reuse the code where possible. After a slight restructuring of the projects section, we will require further functions to be added to add and modify projects and project staff, as well as a page with functionality to update client information. Some areas are yet to be implemented or have errors associated, including the function for adding sources to a report or downloading a report from the KB. These will all be addressed in the next phase of our project.

One of the main issues regarding the Knowledge base, is how to structure the reports sections so that the information will be displayed in an appropriate format that is helpful to the user. This is another issue that will be addressed in the next phase.

Conclusion

We have completed the first phase of our BTech project in which we were acting as part of the Research and Development team for CNZ, collecting & collating information and writing discussion papers for use within the company structure. The deliverables produced, as outlined in the Project brief, include various research reports and Industry Channel presentation slides. I have also produced reports based on our initial evaluation of the Knowledge base. This is in preparation for the next phase of the project, which involves the continued implementation and documentation of the CNZ Knowledge base structure.

Knowledge and skills I have gained from University and have been able to apply to the project include the following;

- ?? COMPSCI 230 - OOA and OOD design, Software architectures
- ?? COMPSCI 314 - Network architecture, Unix platform
- ?? COMPSCI 334 – PHP, Apache, Internet based applications
- ?? COMPSCI 708 - Web page design and theory, Usability
- ?? INFOSYS 222 - Database structure, MySQL commands, ERD diagrams
- ?? INFOSYS 224 and 329 - Network devices & connectivity

I have also learnt much on the Linux environment as well as learnt about other open source tools available and their benefits. I have gained valuable skills in researching and report writing, as well as having learnt about the reliability of information available on the Internet.

APPENDICES

Knowledge Base Initial Assessment Report

Meeting: Thursday 1st May, 6:00pm
Place: The University of Auckland, City Campus – Rm 303.499
Attendees: Edmond Chan, Vincent Yee, Chris Chou, Anisha Ramji

Objectives

- ~~///~~ To inspect and evaluate the current state of the Knowledge Base infrastructure
- ~~///~~ Plan a course of necessary actions for continued development of the Knowledge Base structure.

Results

After meeting with Edmond, we learned how to implement the Knowledge Base from the files given on the CD. The step-by-step details of this implementation procedure are to be written up in a separate document at a later date.

The Knowledge Base has been divided into three categories; Client, Staff & Supervisor. With each category offering a differing level of access and modification rights. The Client side seems to be completed, with a few areas in the Staff and Supervisor levels still requiring implementation or re-checking of the code. As discussed with Edmond, some of the code will be repetitive and once written can be applied to other areas with a bit of careful renaming.

The MySQL database and user interface side seems to be completed to a high standard and it does not appear that any further work would be required in that area.

Documentation appears to be the area that will need the most work. This will include the checking and possibly modifying the current ERD diagrams and supporting documentation, as well as the checking and commenting of the source code. The structure of the files has been done so that the main code is contained in one PHP file and is referred to in all subsequent files. This will definitely be helpful in the learning and documenting process.

As previously discussed by Edmond, the structure of the Knowledge Base may need to be changed slightly to accommodate our reports. At present one issue is how to display documents that spread over more than one page. This will need to be addressed before any of the reports can be entered into the KB, depending on the way in which we decide to link the documents.

From the initial meeting we discovered the following areas that will we need to come back to;

- ~~///~~ Site Map
- ~~///~~ Search function
- ~~///~~ Uploading reports function
- ~~///~~ Updating reports
- ~~///~~ Forum

Strategies

We need to go through all the links within the KB and thoroughly test all aspects to ascertain specifically what areas need to be modified, and what is required to do this.

Forum needs to be re-implemented, this will require downloading the necessary file packages from the PHP BB website (www.phpbb.com)

Some changes to the PHP coding may be necessary, this will first require us to read and fully understand the existing code. Some PHP files still require comments to be added as well.

Documentation will need to be created and modifications made to existing documentation.

Conclusion

Overall we found the Knowledge Base so far to be quite impressive and well implemented. As previously discussed by Edmond, the Knowledge Base overall is fairly complete, with a few areas still to be implemented and modified. We have decided to each try to implement the KB on our own machines and meet again at later date, when we can further discuss with Edmond any questions we may have. Also to determine what specific areas need to be addressed and what action is required.

Microsoft Greenwich for Enterprise Instant Messaging

Classification

Greenwich is the latest RTC software from Microsoft, designed to provide secure and manageable real-time communication, including instant messaging, video conferencing & voice communication, with a strong emphasis on presence.

Research Objectives

To gain an understanding of:

- ~~///~~ What the technology is about (functional specification & technology standards)
- ~~///~~ How it fits in with other complementary technologies
- ~~///~~ How it compares to other competing technologies
- ~~///~~ Evidence of its promise

The Technology

Greenwich is the latest in Real Time Communications (RTC) software from Microsoft, due for release mid 2003. It was designed as a central means to manage variety of Web-based communications, including instant messaging, video conferencing and voice communication, within a business. It aims to incorporate a new era of communications with the emphasis on presence, being able to ascertain whether a contact is online and available, for time sensitive issues.

Greenwich aims to bring four additional key elements to the instant messaging scene: security, manageability, standards based architecture and extensibility. These elements are addressed below:

Security

Security is one of the primary concerns that businesses have with employees using free public Instant messaging services, as confidential company information and details may be compromised during online collaborations. Greenwich addresses this issue with integration with Microsoft's IT security management structure. Microsoft are also currently developing technology to protect unencrypted text as it travels across the internet and provide standards support for existing technologies such as SSL encryption, Digest and NTML/Kerberos encryption.

Manageability

In recent studies, 84% of companies reported that their information workers use instant messaging, most which are private applications which are not endorsed by the company's IT department. Greenwich aims to incorporate manageability and security through integration with the Windows server family, allowing system administrators to deploy an Instant messaging solution which is managed using the same tools as the existing Windows infrastructure.

Standards Based Architecture

Microsoft released its first enterprise instant messaging product as part of Exchange 2000, since then they have looked at improving this by making the platform extensible and allowing it to be used in other applications, other than just the core application. To do this they have based the new product on an industry standard protocol called SIP, Session Initiation Protocol, (and its related protocol SIMPLE – SIP for Instant Messaging and Presence Leveraging Extensions) which is approved by the Internet Engineering Task Force (IETF). This provided the base for presence, one of the major features in Greenwich, as well as the ability to support API's and real-time content including text, speech, video and files.

Extensibility

Extensibility is another main feature in Greenwich, as it was designed to be a robust communications base, which can be further developed to integrate with other services. Microsoft predict that Line of business integration will be one those vital points of evolution, especially in areas such as Customer Relationship Management and other such systems that rely on real-time communications as their main information delivery means.

Complementary Technologies

Microsoft chose to implement the Greenwich platform directly on the Windows platform, as they believe this will allow it to be widely exploited and familiar to a large user base. Part of their RTC implementation process included the release of MSN Messenger Connect for Enterprises, this allows businesses to extend MSN Messenger and Windows Messenger beyond the corporate firewall to customers and consumers, and allows administrators to manage the solution within the familiar Windows infrastructure. MSN Messenger Connect enables the management and logging of instant messenger conversations between the enterprise user and customer to help protect company privacy and intellectual property, also for regulatory compliance in certain industries. Greenwich will interoperate in a standards based environment with MSN Messenger via MSN Messenger Connect, Windows Messenger and any other communications applications. Microsoft aims to make real-time communication and collaboration part of every application and intend to integrate that aspect into all the Microsoft Office applications. Being standards based, Microsoft hopes to create partnerships with other Systems integrators and developers who can provide their own solutions by building on top of the Greenwich capabilities. To date, areas where there has been strong interest in developing include: integration with telephony applications, line of business applications, information worker productivity applications and conferencing applications.

Another of the Microsoft RTC platforms due for release soon is Microsoft's Windows Messenger 5, which targets enterprises and is based on the beta version of Greenwich. Windows Messenger 5 includes simultaneous support for the Internet based .NET Passport, SIP Communications Service and Exchange Instant Messaging.

Competing Technologies

Other major instant messaging networks, ICQ, AOL Instant Messenger (AIM) and Yahoo Messenger, which currently do not interoperate with one another, are also looking into moving towards a SIP based approach. Microsoft believes that the SIP/SIMPLE based approach sets Greenwich apart from the rest as their competitors are using gateways, these pose a performance, compatibility and manageability issue for IT managers.

Since the announcement of Microsoft Greenwich, Yahoo has also announced the release of its new instant messaging client, Yahoo Messenger Enterprise Edition, due out in the first quarter of 2003. AOL has also announced its Enterprise RTC Client, 'Enterprise AIM', which will incorporate VeriSign security credentials and end-to-end encryption. It is hoped that this competition will bring about the development of standards in Enterprise Instant messaging, particularly in relation to logging, auditing and encryption.

Evidence of Promise

Greenwich is currently still in the beta testing stages, but Microsoft reports that the feedback and figures from Microsoft Exchange enterprise instant messaging client and similar products such as Windows Messenger & MSN Messenger, have been favourable. According to recent studies by IDC and Ostermann Research there are 200 million instant messaging users worldwide, this number is predicted to increase to 500 million by 2006. Of those, there are currently 75 million using MSN Messenger for their real-time communication and collaboration requirements.

Large international company, Reuters, in alliance with FaceTime, are currently using Reuters Messaging developed with the help of Microsoft and based on the Greenwich technology. Targeting the intense security and reliability needs of the finance industry, where the capability to log, track and audit all electronic forms of communication is a critical requirement. Reuters are currently implementing the solution as a fully hosted service, but envisage that it will eventually become a federated network of presence collaboration.

References

Microsoft Website – www.microsoft.com

- *This website provided much in-depth technical information on the product and was very useful, I would rate this resource as excellent. However, in terms of opinions, some of the information may be slightly biased as it is the website of the creator of the product.*

eWeek Website – www.eweek.com

- *Information found on this website was useful in gaining the consumer opinion on the product from a non-biased point of view, I would also rate this resource as very good.*

InfoWorld Website – www.inforworld.com

- *Provided useful information relating to real world application and opinion of the product, a good reliable source*

Instant Messaging Planet.com – www.instantmessagingplanet.com

- *A good resource providing much detail on the product and similar products available. I would rate this resource as very good, as it provides much information from an informed view.*

Open Source Jabber IM XML Protocol for P2P data exchange

Classification

Jabber is an open source XML protocol for the real time exchange of messages and presence between any two points on the Internet. The XML platform is the basis for peer-to-peer collaboration.

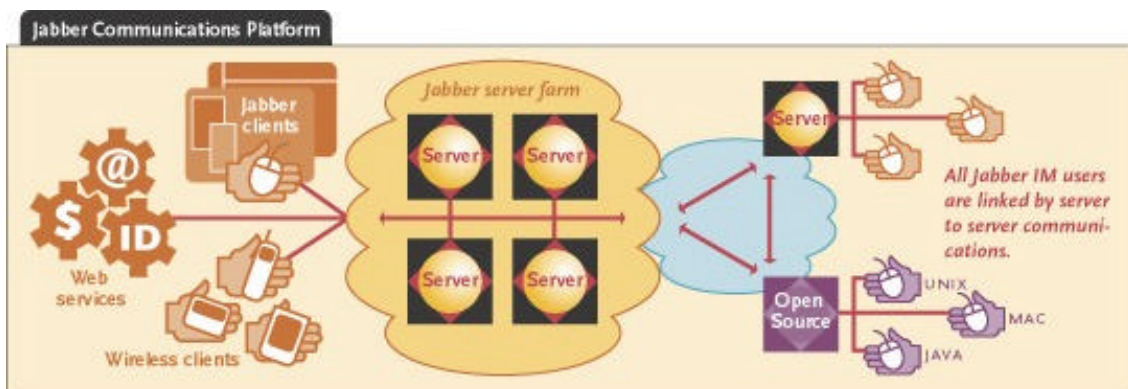
Research Objectives

To gain an understanding of:

- ✍ What the technology is about (functional specification & technology standards)
- ✍ How it fits in with other complementary technologies
- ✍ How it compares to other competing technologies
- ✍ Evidence of its promise

The Technology

Jabber is an open source XML protocol for the real time exchange of messages and presence between any two points on the Internet. It consists of an extensible instant messaging platform and an instant messaging network that offers functionalities similar to that of AIM (AOL Instant Messenger), ICQ, MSN and Yahoo, but with several advantages. The first is that it is open-source; the Jabber protocol is free, publicly available and easy to understand. There are currently many open source implementations of the Jabber servers and clients, as well as development libraries to aid users in extending the protocol to suit their needs. The protocol is highly extensible through the use of simple, XML namespaces, allowing the user to easily add custom functionality and interoperability. Another advantage is that the technology is decentralized, enabling individuals or organizations to run their own Jabber servers. This control over the server adds to the security of the technology, as the server is able to be isolated from the public Jabber network. The Jabber client also supports uni-directional or bi-directional subscription to presence to allow users greater privacy and security. These factors along with the interoperability of Jabber have made it well suited to the Peer-to-Peer (P2P) scenario.



The XML platform is the basis for peer-to-peer collaboration, creating the interface for sharing enterprise computing resources in the P2P environment. This is done through the combination of XML and Simple API for XML (SAX) to create a way in which to pass data and call remote processes. Initiated on the server and client, it then enables real-time collaboration and integrated workflow. When implemented in this manner, servers can also be treated as Peers, allowing collaboration between them, just as with clients, and increasing the scope of peer-to-peer communications. When combined with other technologies such as Rich Site Summary (RSS), communication & collaboration process can be further enhanced.

As interoperability is a key factor, Jabber is currently working with the Internet Engineering Task Force (IETF), along with a consortium of other professional groups, to develop a standard that addresses issues such as security and internationalisation.

Currently Jabber supports SSL between client and server communications and SASL (Simple Authentication and Security Layer) as the preferred authentication method, although this protocol is still in draft status and has not yet been fully implemented by all Jabber server implementations. During the sign in process the Jabber client integrates with various network directory and authentication services such as Active Directory and LDAP.

Jabber clients use simple TCP sockets to exchange XML documents with the Jabber servers. The Jabber servers can be extended to act as gateways to other Instant Messaging services as well as to e-mail and telnet services. As it based on the XML platform and TCP sockets, any device that is able to access a TCP socket has the potential for Jabber access.

Complementary Technologies

The main advantage of Jabber is its interoperability between other IM systems, such as AIM, MSN, ICQ and Yahoo. This is achieved by the Jabber protocol 'masquerading' as the foreign protocol, acting as a translator between the two systems to provide seamless integration from the users perspective. Although it is not currently fully compatible with all other IM systems, its XML base allows for the protocol to be extended in order to accommodate other such systems and applications.

Jabber client are currently available for many platforms including Linux/Unix, Windows, Macintosh and several others. Web clients that include other technologies such as Java applets, Mozilla integration and HTML & JavaScript are currently in progress, with the intention of enabling Jabber communications over HTTP. Future expansions include Jabber access for handheld devices, mobile phones and other embedded systems.

Competing Technologies

Since the early days of Instant messaging, beginning with ICQ, there have been many companies entering the IM market, most of which have implemented their own proprietary servers and clients that only operate with like-clients. It has been reported that the main IM corporations – AOL Time Warner, Yahoo and Microsoft, currently divide the majority of instant messaging users between them. The Jabber protocols' current interoperability between these legacy IM systems along with its XML platform for easy extensibility sets it apart from its competitors.

Evidence of Promise

Since the Jabber project was created by Jeremie Miller in 1998, the protocol has continually been evolving. The Jabber Open Source project now has over 150,000 server implementations, Jabber libraries for a wide variety of languages and Jabber clients for a vast range of platforms. Jabber services have been deployed at thousands of domains on the Internet and on private intranets, and it is believed to have over three million Jabber instant messaging users worldwide.

The rate at which Jabber services are being adopted has been compared to the trajectory of email services, and with the integration of new technologies, such as the integration into the P2P computing scene, this growth is expected to continue.

In the corporate world, Jabber has been deployed in the telecommunications, enterprise and software development markets by major international customers that include: Hewlett-Packard, BellSouth, AT&T and Landmark Graphics.



Left: Jabber Messenger Client

References

Jabber Inc. – www.jabber.com

- *The proprietary website provided much information on the protocol and its application. I would rate the reliability of this resource as excellent.*

Jabber Software Foundation – www.jabber.org

- *This website was useful in gathering information on the product from a non-commercial point of view, I would also rate this resource as very reliable.*

OpenP2P.com – www.openp2p.com

- *A good resource providing a good level of detail on the product and its extensions. I would rate this resource as very reliable, as it provides much information and is from a well-established and reputable organization.*

internetnews.com – www.internetnews.com

- *Provided useful information relating to real world application and opinion of the product, a good reliable source.*

Microsoft Desktop Site for Windows XP Tools

Classification

The Microsoft Desktop Deployment Centre site contains a collection of references, tools & services, as well as outlining best practises and training for migration to the Windows XP operating system.

Research Objectives

To gain an understanding of:

- ~~///~~ What the technology is about
- ~~///~~ How it fits in with other complementary technologies
- ~~///~~ How it compares to other competing technologies
- ~~///~~ Evidence of its promise

The Technology

The Desktop Deployment Resource Centre was created by Microsoft to help IT professionals evaluate and deploy the Windows XP Operating system and its latest release of the Office applications, Office XP. The aim was to provide the decision makers and IT specialist within the business with resources to aid in evaluating, deploying and maintaining the Windows XP and Office XP. It includes resources such as TechNet, white papers, guides, services offerings, knowledge base articles, third-party tools and best practises & advice from those that have already implemented the system. These resources are indexed by product, company size and stage in the migration process to put the most relevant information at the users fingertips, during whichever stage of implementation.

Some of the Tools available in the Desktop Site include:

Microsoft Application Compatibility Analyzer 1.0

The Microsoft Application Compatibility Analyzer uses a command line tool called the Collector to gather information regarding applications currently installed on the machine. It then creates application inventories, organizing the information, generating reports, and analyzing application compatibility data. This allows the organization to prioritise in-house software testing.

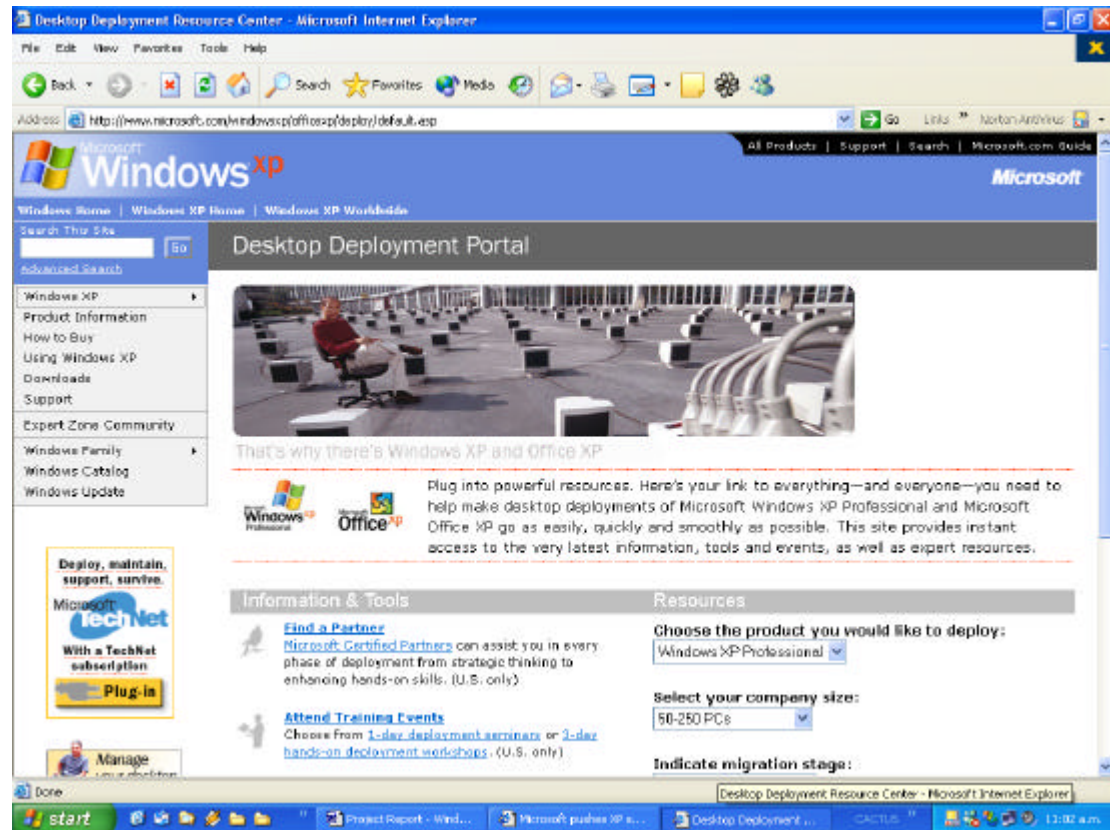
Windows Application Verifier 2.5

Used during the application development and testing process, the Windows Application Verifier is designed to identify potential application compatibility issues. Included are tests for compliance with various requirements of the Designed for Windows XP and Windows Server 2003 Logo Programs, as well as tests for issues with heap & memory management and common security issues.

Compatibility Administrator

The Compatibility Administrator is used for selecting and applying compatibility fixes to applications that have been found to be incompatible. It allows the fixes to be grouped together into a compatibility database, which can then be deployed to other computers.

The Desktop Centre site also includes a new version of Microsoft's Baseline Security Analyzer, which scans Windows systems looking for common system misconfigurations and missing security updates.



Complementary Technologies

In addition to the online resources Microsoft have also been offering courses and free online Web seminars to provide project guidance, technical training and outline resources available to assist in upgrading. Aimed at complementing the information available on the Desktop Centre site, the Desktop Deployment Web Seminars consist of weekly, one hour, interactive events that cover deployment technologies, tools and best practises from Microsoft professionals. The courses, held throughout the US, address key tasks during the evaluation and deployment stages, various tools & technologies available, and areas for further study.

The Desktop Centre site also provides links back to the main Windows XP and Office XP sites for users to download the latest updates and security fixes.

Competing Technologies

One of the main issues that most businesses have had concerns over is that old applications would be incompatible with the new platform. Microsoft reassures that around 95% of applications will still work fine with the new operating system and the Desktop Deployment site helps in assessing which of the current applications may cause problems. For the small percentage that are not compatible the site offers multiple tools, including generic fixes, to help overcome these issues.

Evidence of Promise

One of the aims of the site was to drive a greater adoption of the Windows XP operating system and with the number of Windows XP users worldwide, it seems this has been successful.

Although it is not clear how many hits the site has received, many business and organizations have reported it be a very useful resource aiding in the process of upgrading to Windows XP and Office XP.

References

Microsoft Desktop Deployment Centre –

<http://www.microsoft.com/resources/desktop/deployment/default.asp>

-The website in discussion, it provided very detailed, useful information as well as downloads and links to extra resources. As it provided by the creator of the product, I would rate this resource as excellent in terms of reliability.

Microsoft Website – www.microsoft.com

- This website provided much in-depth technical information on the products and was very useful, I would rate this resource as excellent. However, in terms of opinions, some of the information may be slightly biased as it is the website of the creator of the product.*

C Net News.com – news.com.com/2100-1001-985820.html

- Provided useful information relating to real world use and opinion of the product, I would also rate this resource as very reliable.*