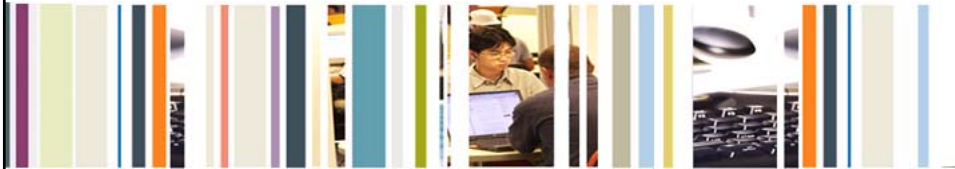


DNS Upgrade 2003

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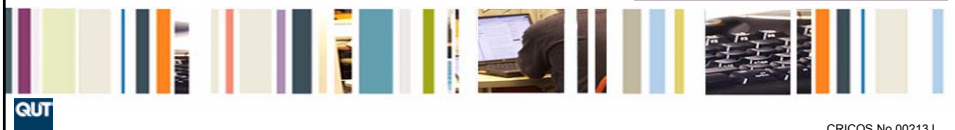


Division of Technology Information and Learning Support
CRICOS No.00213J

Introduction

- QUT Disclaimer : all thoughts are that of mine and in no way reflect the opinions of QUT or managers,etc. etc bla. bla..

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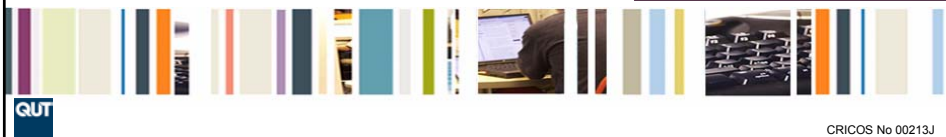


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Agenda

- QUT DNS history
- New era (.com) new problems.
- DNS/DHCP service administrators proposed response to this new era.
- CIO, IT management response to the proposal.
- Reframing the Solution to meet the business goal not the technology goal.

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Agenda cont.

- What Solutions were considered.
- Why an appliance solution.
- Why the Infoblox DNSOne as the solution.
- What appliances don't resolve.
- Closing remarks/questions.

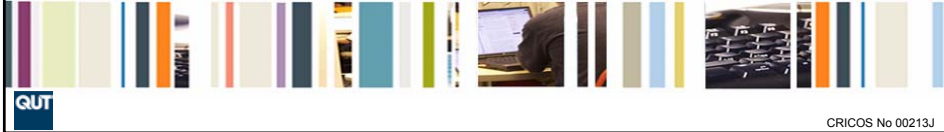
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DNS Humble Beginnings at QUT

- DNS was deployed on proprietary hardware using open source (bind).
- CGI Web front end developed in house to manage the qut.edu.au zone only.
- DHCP deployed in a similar manner.
- Good for nearly 10 years.
- BUT,, Lots of technology to manage.

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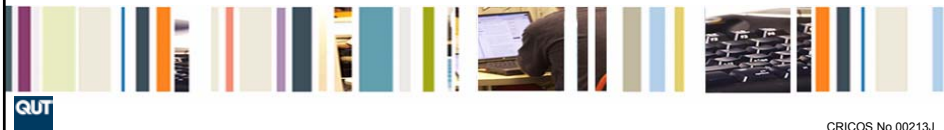


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The Problem

- QUT's DNS world was changing
 - More zones:- qut.com, ccc.edu.au etc.
 - Classless networks:- no longer were c class boundaries sufficient
 - Many managers of the DNS service in a short timeframe (Business Continuity).
 - Exponential growth of host names to manage

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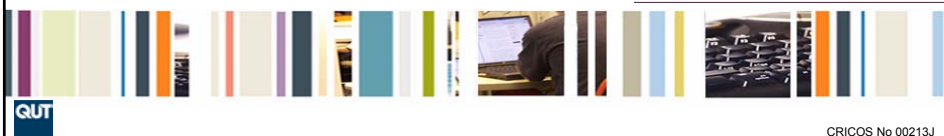


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The Problem cont.

- CGI front end to build DHCP and Bind configs were becoming a nightmare to extend given the rate of change and the resources available.
- DNS hosted on multiple OS's (linux, tru64, windows).
- Security of host platform and the DNS/DHCP service in this heterogeneous environment became unwieldy.
- Complexity of the solution was becoming difficult to manage (Web servers, Databases, DNS/DHCP service etc.).

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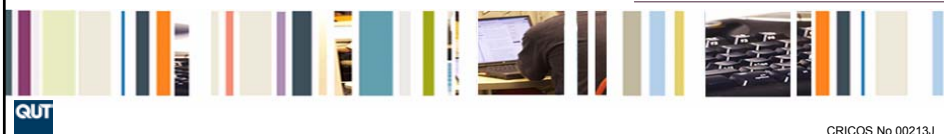


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Problem (cont.)

- The N°1 issue: Management insistence on value add.
 - DNS is a utility so why so much effort.
 - Turnkey solution
 - The team responsible for maintaining DNS/DHCP and the CGI front end could not add value to the core business (teaching).
 - Activities that impacted the client experience (students) got precedence.

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Service Owner Response

- The team responsible for DNS and DHCP initially responded by:-
 - More resources needed to be allocated to develop the GCI interface to embrace new and required functionality (non-QUT zones, classless networks etc.)
 - More resources to manage DNS/DHCP on multiple OS platforms.
 - More resources to study deployment and security issues.

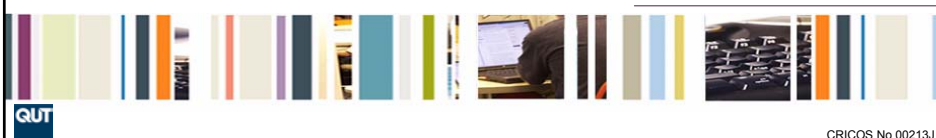
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QUT Management Response

- We needed to re-deploy development activities that would add value to the core business of QUT.
- This meant:-
 - No resources to develop CGI interface.
 - Diminishing resources into the future for non core business activities.

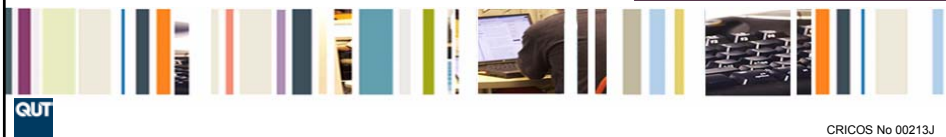
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QUT Management Response (cont.)

- Insistence on a client focus mode of operation.
- Will there be a need for additional functionality in the future?
- Delivering value add with new spending.
- Focus on People and Process not Technology (ITIL/Gartner).
 - QUT IT Management are heavily into Gartner Reports.

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The New Order

- The question was how to address the service owners issues while addressing management strategic concerns.
- How can we add value to DNS/DHCP while:-
 - Addressing the need for feature enhancements.

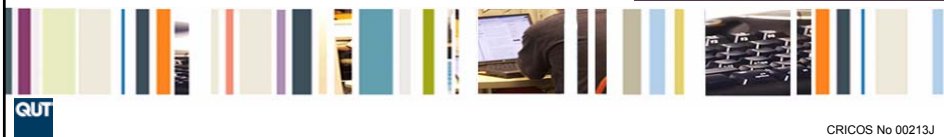
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Developing the Solution

- Value add includes diversion of development resources to core business activities.
- Integration with AD.
- Concentrate on the processes and not the technology:-
 - Develop better processes to manage DNS/DHCP in it's entirety (vertical services atop horizontal deployment).

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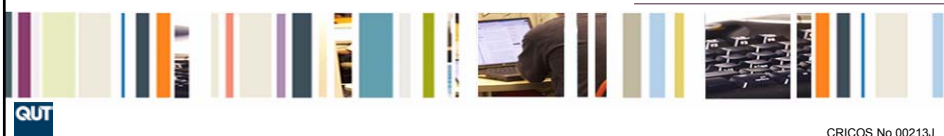


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Solution Requirements

- Decide what technology aspect of DNS/DHCP is important to your business.
 - Highly Available
 - Distributed Management
 - Service Documentation
- Outsource the technology aspects of the service.
 - Like the HA aspects.
 - Web Management Interface
 - Patch Management
- Re-align development activities to focus on business requirements.
- Develop applications using the API's to allow for value add for integration aspects (vertical integration).

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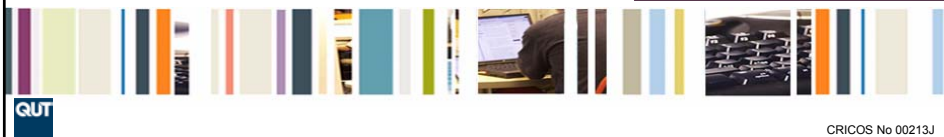


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Solutions Considered

- Why not a general purpose computing platform such as Windows DNS :-
- HA best provided in AD Integrated Zone mode of operation but would lock us into one DNS/DHCP solution.
- Management tools not web based.
- Security in terms of the host equivalency
 - Compromise of one service such as AD or the OS is a compromise of DNS/DHCP running in AD Integrated Zones.

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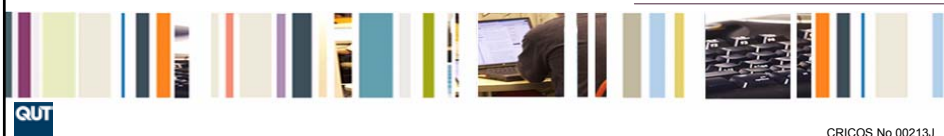
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Why an Appliance?

- Integrates all required services (DNS, DHCP, Time, OS etc.) into one platform.
- Simplified technology management.
- Allows the DNS/DHCP service provider focus on processes such as:-
 - Deployment
 - Change management
 - Policy development
 - Active Directory Integration
 - All the vertical aspects of the address management service.

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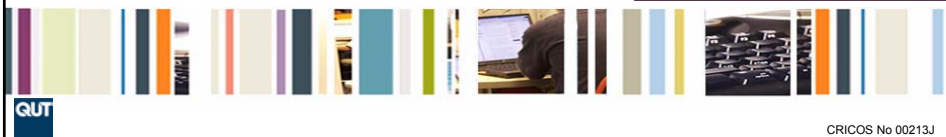
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It's About The Horizontal Deployment Stupid

- Purchase of appliances does not dissolve responsibility for a well designed Horizontal Deployment.
 - Horizontal deployment is a critical aspect in providing a secure reliable address management services.

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Horizontal Deployment Features

- Service Owners need to know at the minimum:-
 - Hidden Primary Master
 - the DNS master hosting the read/write zone data but host not part of ns records.
 - Stealthy Secondary
 - Configured as secondary but not listed as an ns record.
 - Typically recursive DNS servers there fore sensitive to DNS service restarts.

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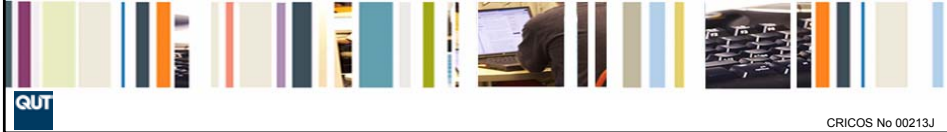


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Horizontal Deployment Features Cont.

- Caching
 - Not listed in the ns records.
 - Forward Only typically to a recursive server.
- Secondary
 - Listed as ns records for a zone.
 - Typically used by clients external to the organization.
 - Returns authoritative data only

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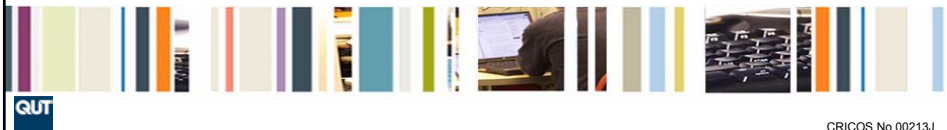


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Why Infoblox?

- Simply it addressed many of our technology problems
 - Highly Available solution.
 - Technology Independence in the form of an appliance.
 - Security patching, Upgrades are a breeze.

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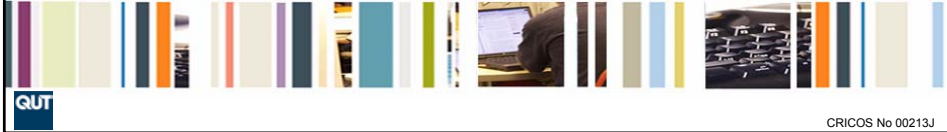


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Why Infoblox (cont.)

- Black box slightly opaque
 - Can get the configs out in bind format.
- Easy install and deploy.
- Single source of support for the entire service
DNS/DHCP Web front end:-
 - No SW vendor blaming OS and no OS vendor blaming device drivers etc.
- Best DHCP HA we encountered
 - No 60/40 split of networks.

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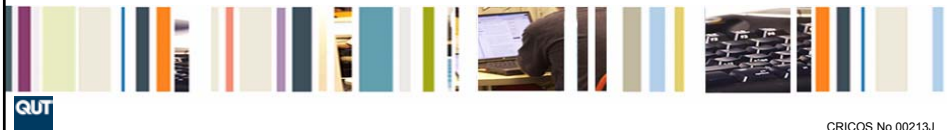


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DNS Report

- Tool for checking horizontal deployment.
 - dnsreport.com:- Great tool for evaluating domains from delegation to deployment.

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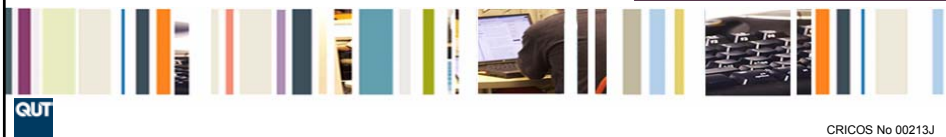


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Closing Remarks

- The DNS/DHCP services have been running for almost three years with very little interruption.
- Not without it's problems:-
 - Still have to get the horizontal deployment right.
 - No IP V6

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Closing Remarks (cont.)

- My take is that the transition has been successful because of many things but one thing does stand out:-
 - SUPPORT
 - *Nothing in technology is perfect but what makes the difference is support and when choosing an appliance, this is very important.*
- Most Problem we encountered was of our own making.

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