



NEWSLETTER

CENTRE for
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PROTECTION

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TIME IS OF THE ESSENCE

This month we reproduce an article from the State Services Commission's e-Government Unit (EGU). The article focuses on the provision of a reliable and publicly accessible primary Network Time Protocol (NTP) server for the synchronisation of computer time. We wish to thank the EGU for allowing us to publish this article. We also wish to acknowledge Industrial Research Limited for providing the NTP service to the New Zealand ICT community.

Also of interest from the EGU is the recent [Networking Government 2004](#) conference. Details of the conference, including

links to the conference presentations, can be found [here](#). This page also has links to a number of fact sheets on such topics as Policy, RSS and web guidelines, which will be of relevance to our public sector readers.

This month's batch of Microsoft advisories must come as a relief to system administrators around the world. A single vulnerability, rated 'important' in the [Help and Support Center](#) interface, was the only new item. However, there were also updates to [MS01-052](#), which contained details of an additional denial of service vulnerability in NT4 Terminal Server, and

[MS04-014](#), the recently released advisory detailing a vulnerability in the Microsoft Jet Database Engine.

Finally, the Australian Computer Emergency Response Team (AusCERT) is holding its annual conference on the Gold Coast this month. This is a valuable opportunity to network with security professionals from the Asia Pacific region. Keynote speakers include Eugene Spafford from Purdue University, Max Kilger, a psychologist from the HoneyNet Project and Fred Baker from Cisco Systems. Further details can be found on the AusCERT [website](#).

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GOVERNMENT TIME STANDARD

Synchronisation to New Zealand Standard Time

Synchronised and trusted time is required to keep network systems functioning accurately, reliably and securely. Up until now, a major shortcoming of the New Zealand Internet has been a lack of a publicly accessible primary Network Time Protocol (NTP) server for the synchronisation of computer time.

Industrial Research's Measurement Standards Laboratory (MSL) is now providing such a server for connections within New Zealand.

Introduction to NTP

The main design goal of NTP is to tightly synchronise to Coordinated Universal Time (UTC), the clocks of a large number of computers distributed throughout the Internet. A host on which the NTP software runs is known as an NTP server. A small proportion of NTP servers are primary servers that are connected to external sources of UTC, such as atomic clocks or GPS receivers.

An NTP server with direct access to a source of external time is said to be a primary server at stratum 1 (level 1) of the NTP hierarchy. Every other NTP

server synchronises its clock, directly or indirectly, to the clocks of one or more stratum 1 servers, as well as peers at the same stratum, in case the primary servers cannot be contacted or are faulty.

The Challenge

The most significant source of error in NTP timekeeping is variability in network delays experienced by NTP packets that contain timing information. Up until now, a major shortcoming of the New Zealand NTP subnet has been a lack of a publicly accessible primary (Stratum 1) server. With no primary NTP servers in New Zealand,

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the quality of all timing information is dependent on the delays experienced on our international Internet links.

The Solution

The Measurement Standards Laboratory (MSL) is the official disseminator of the time standard, UTC(MSL), for New Zealand. (Most people will be familiar with their time service disseminated as a series of "pips" broadcast by Radio New Zealand on the National Radio station.)

MSL is now providing a Network Time Protocol (NTP) stratum 1 server for connections within New Zealand. The server is referenced to UTC(MSL) by direct connection of a pulse per second signal from the master caesium atomic clock which is part of the New Zealand time standard. The time in the server is typically stable to around 1 microsecond with respect to the time in the caesium clock.

[Network systems require synchronized and trusted time to keep functioning accurately, reliably and securely.]

Using the server

The server is a publicly available server open to all connections from within New Zealand. Its address is msltime.irl.cri.nz (Note: this server only services NTP and Simple Network Time Protocol (SNTP) requests. It does not respond to datetime requests.

Government agencies however, should register their use of the server with

MSL by sending the IP address of their server (a static address is required) and a contact email address to time@irl.cri.nz. The reason for this requirement is that some servers overseas have been flooded with requests from devices such as routers and access to the server may have to be restricted at some time in the future.

Agencies should limit their requests to come from at most three servers and then any additional server should connect to what will be the agencies three stratum 2 clocks.

The best and most accurate way of using this service is to install the official NTP distribution from www.ntp.org. Versions are available for most versions of Unix. Windows versions are available for Windows NT, 2000 and XP.

NTP configuration guidelines

(Extract from The NTP subnet in New Zealand, by Paul Ashton, Department of Computer Science, University of Canterbury)

The NTP documentation contains guidelines about how NTP should be established within an administrative domain. Some are worth paraphrasing here to allow comparison with the structures within New Zealand.

In the case of a gateway or file server providing service to a significant number of work-stations or file servers in an enterprise network it is even more important to provide multiple, redundant

sources of synchronization and multiple, diversity-routed, network access paths.

The preferred configuration is at least three administratively coordinated time servers providing service throughout the administrative domain including campus networks and subnetworks. Each of these should obtain service from at least two different outside sources of synchronisation, preferably via different gateways and access paths. These sources should all In addition, each of these time servers should peer with all of the other time servers in the local administrative domain at the stratum level used by the local time servers, as well as at least one (different) outside source at this level.

This configuration results in the use of six outside sources at a lower stratum level (toward the primary source of synchronization, usually a radio clock), plus three outside sources at the same stratum level, for a total of nine outside sources of synchronisation.

When planning your network you might, beyond this, keep in mind a few generic don'ts, in particular:

- Don't synchronise a local time server to another peer at the same stratum, unless the latter is receiving time from lower stratum sources the former doesn't talk to directly. This minimizes the occurrence of common points of failure, but

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Network systems require synchronized and trusted time to keep functioning accurately, reliably and securely.

Agencies should limit their requests to come from at most three servers and then any additional server should connect to what will be the agencies three stratum 2 clocks.

GOVERNMENT TIME STANDARD (cont.)

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does not eliminate them in cases where the usual chain of associations to the primary sources of synchronisation are disrupted due to failures.

- Don't synchronise more than one time server in a particular administrative domain to the same time server outside that domain. Such a practice invites common points

of failure, as well as raises the possibility of massive abuse, should the configuration file be automatically distributed to a large number of clients.

Further detail about the operation of this service can be found [here](#).

Further reading about the NTP subnet in New Zealand can be found [here](#).

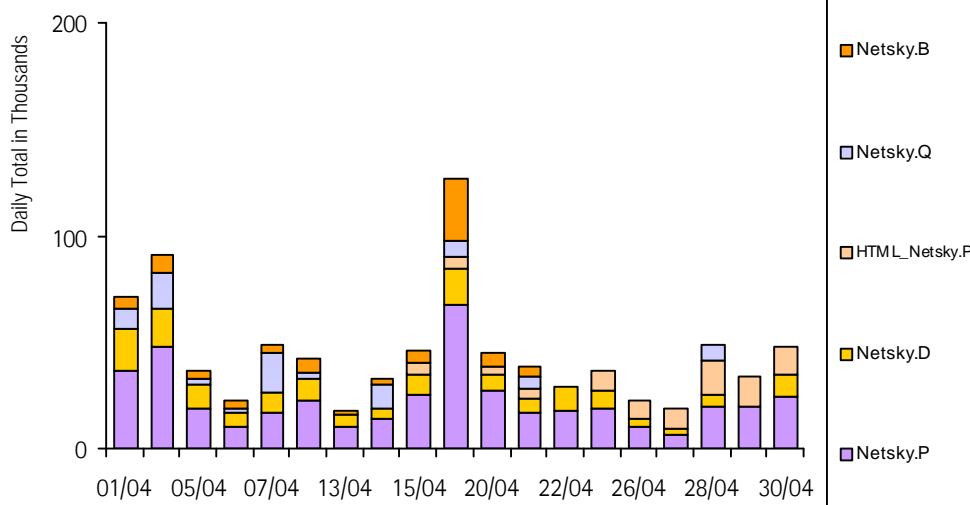
Any emails about the service should be directed to: time@irl.cri.nz.

The E-government Unit will be moving to formalise use of this time source, as an e-GIF standard.

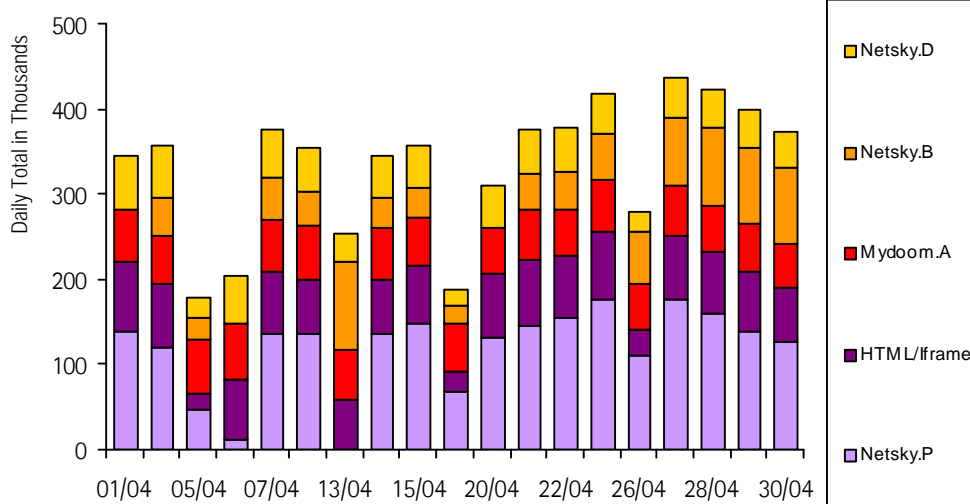


VIRUS ACTIVITY

Daily top 5 viruses captured worldwide by [TrendMicro](#) for April



Daily top 5 viruses captured worldwide by [RAV](#) for April



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CCIP only issues those external alerts that we assess as serious and would affect a large number of NZ users. For notification of all discovered software vulnerabilities we recommend that you subscribe to a commercial Computer Emergency Response Team or to vendor alert lists.

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