



IEEE 802.3 Energy Efficient Ethernet Study Group

Server Bandwidth Utilization plots

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Discussion

- At the last SG meeting we said we needed to get server BW utilization data
 - There is speculation regarding server BW utilization
- The utilization will vary by server type
- I plotted the utilization on a few different servers at LBNL
 - The ones I could get my hands on without too much effort ...

Servers plotted

■ Server types

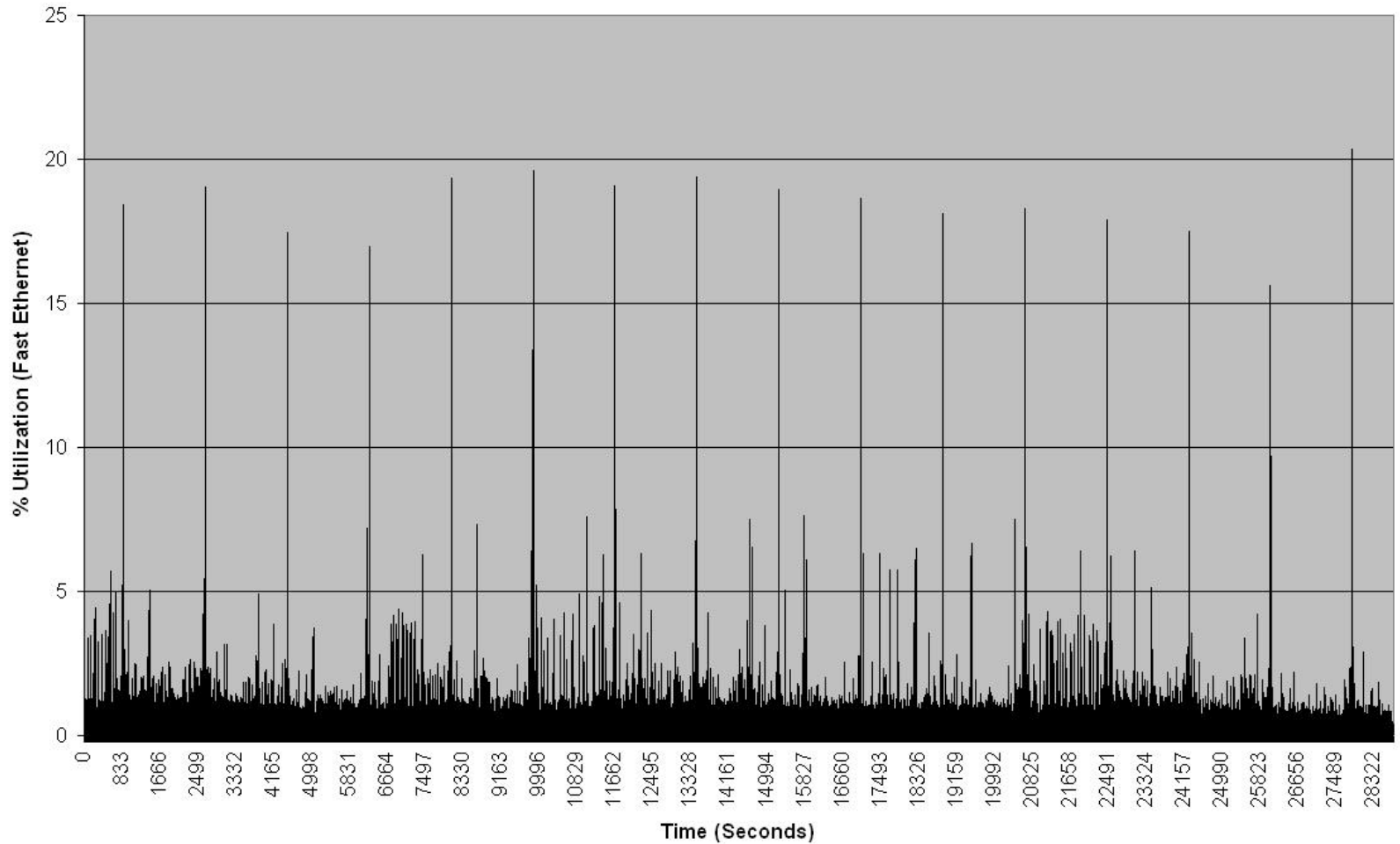
- Domain Name Service
- DHCP service
- E-mail
- File Server

■ Network connected at 100Mb/s

- File server connected at 1 Gb/s

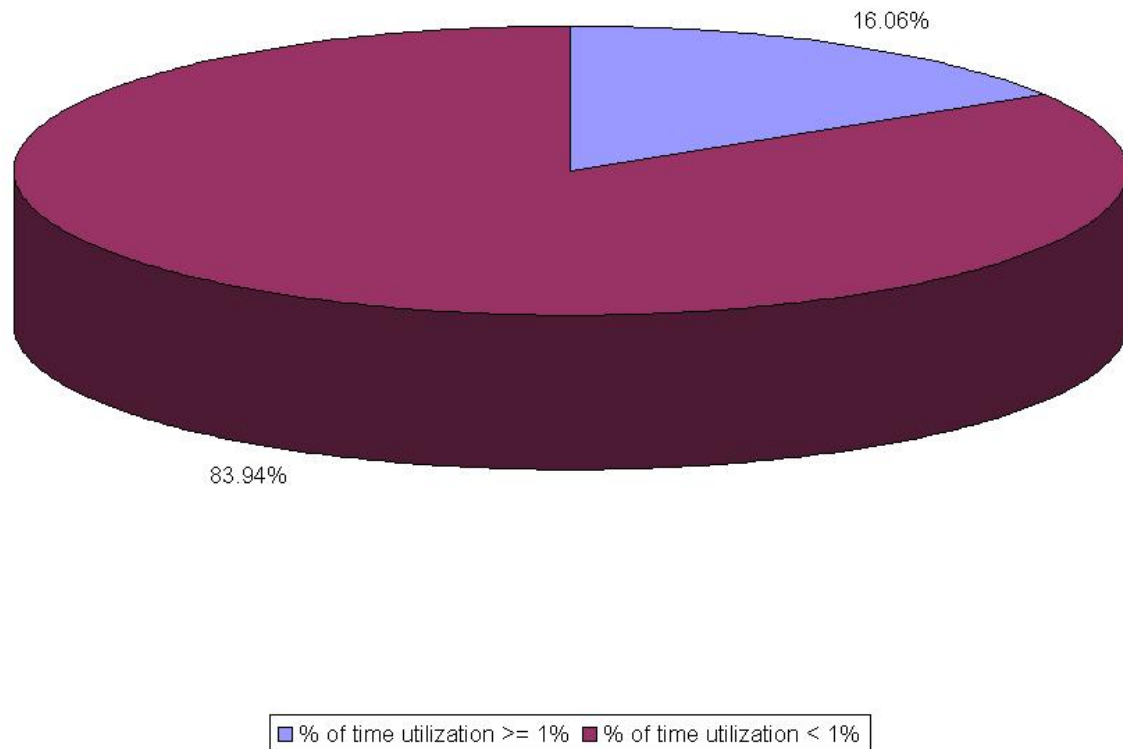
Server BW Utilization Data

LBNL DNS Server BW Utilization



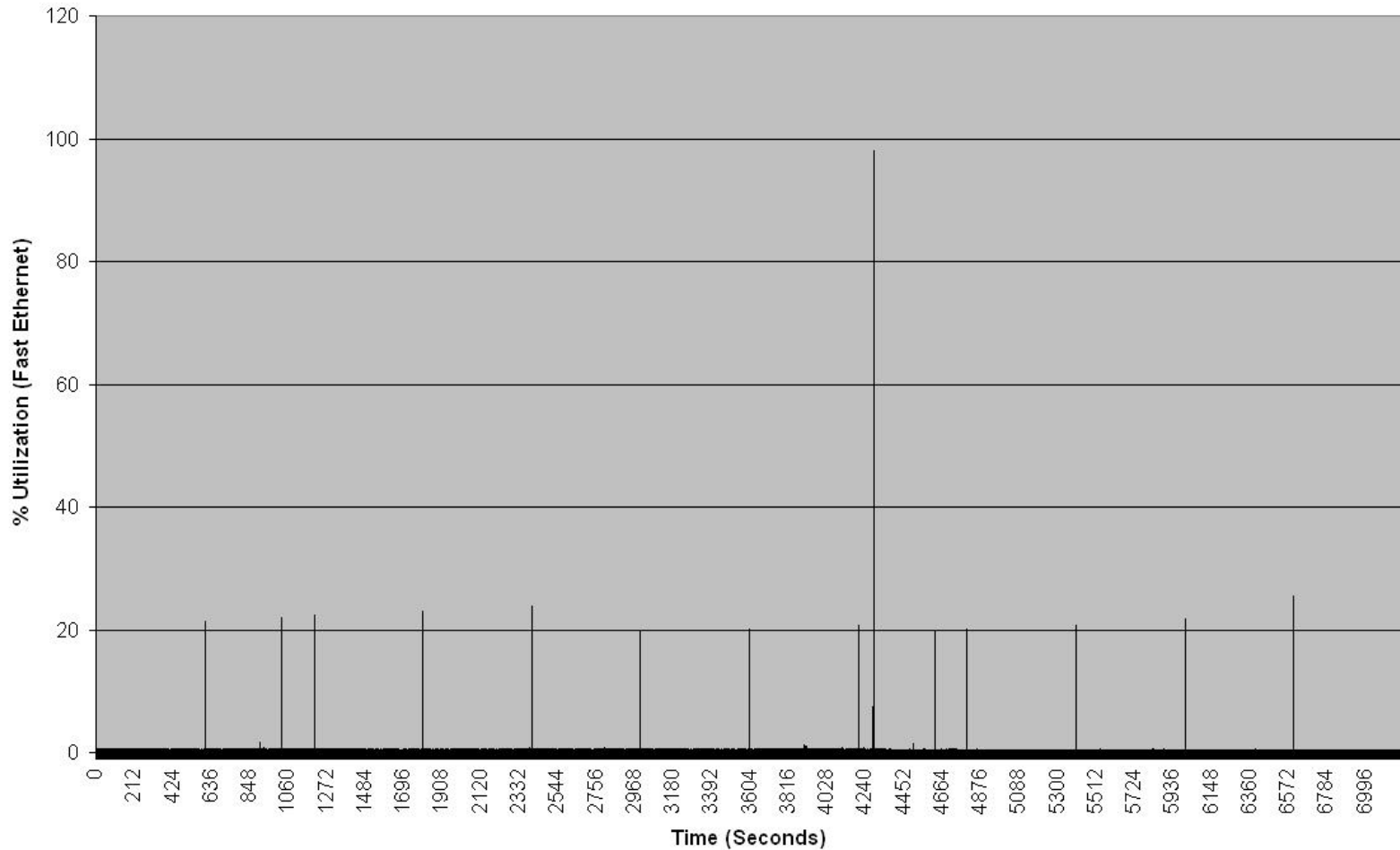
Server BW Utilization Data

LBLN DNS Sever BW Utilization Profile



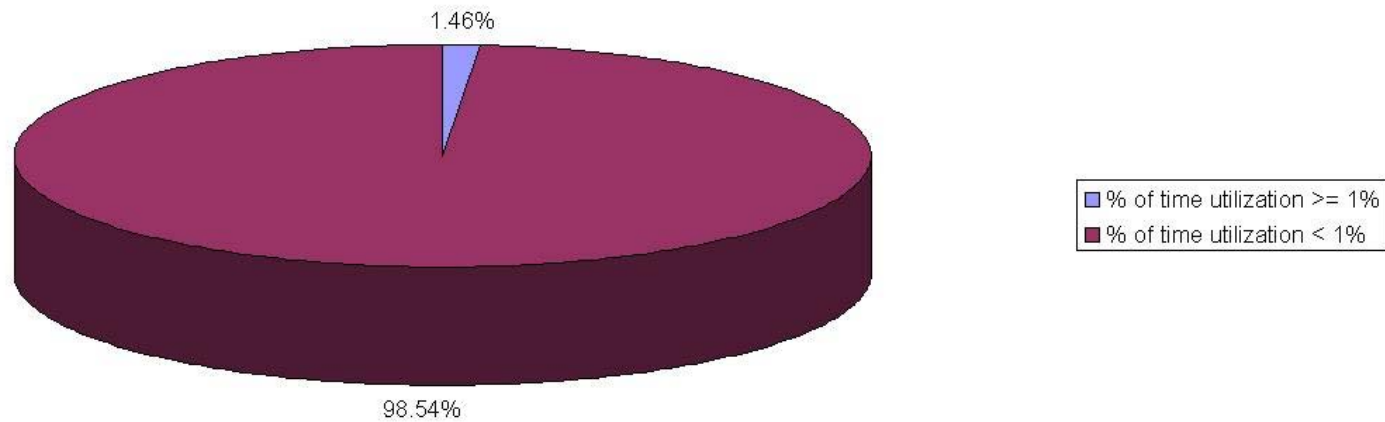
Server BW Utilization Data

LBNL's DHCP Server



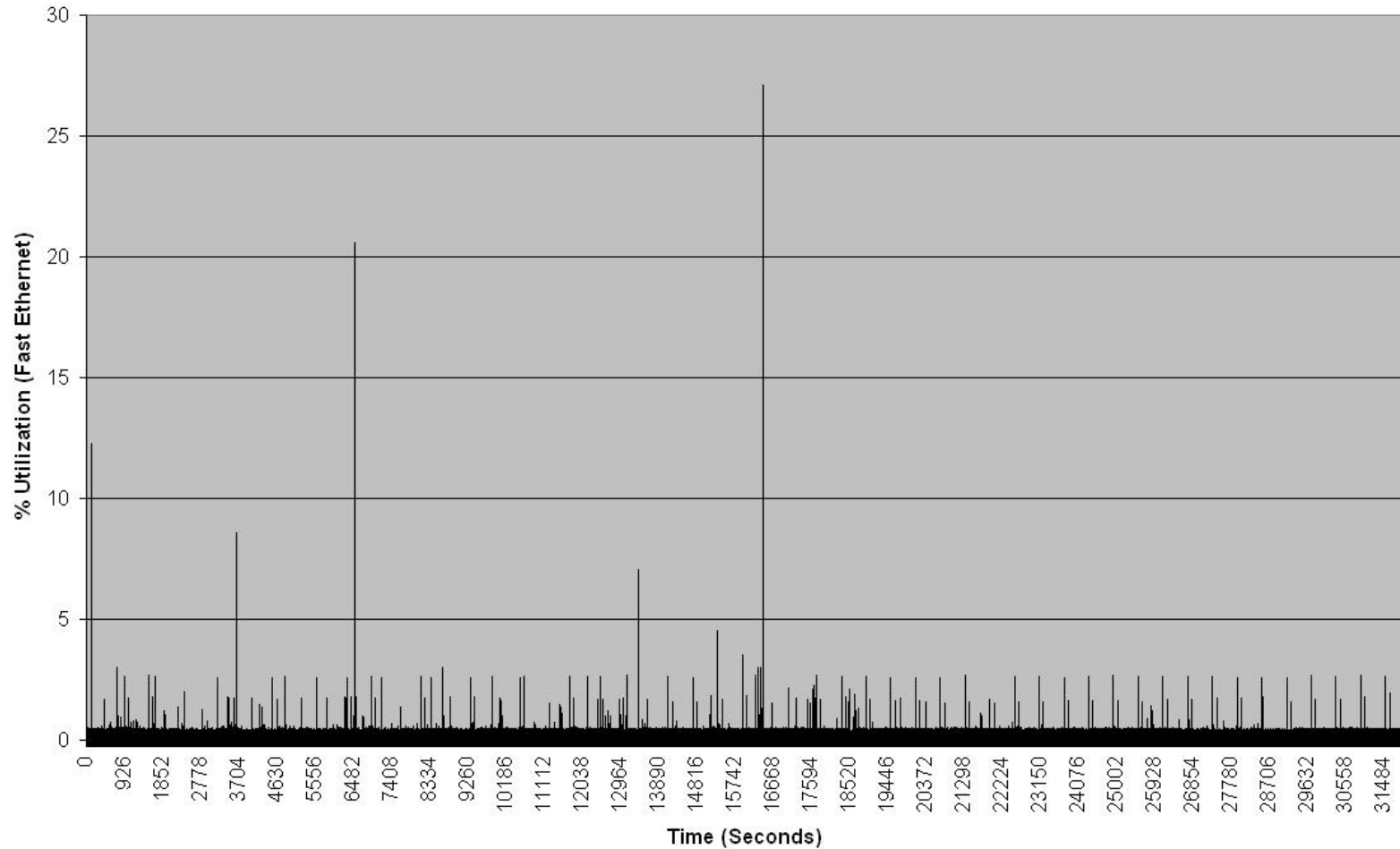
Server BW Utilization Data

LBNL's DHCP Server BW Utilization Characteristics



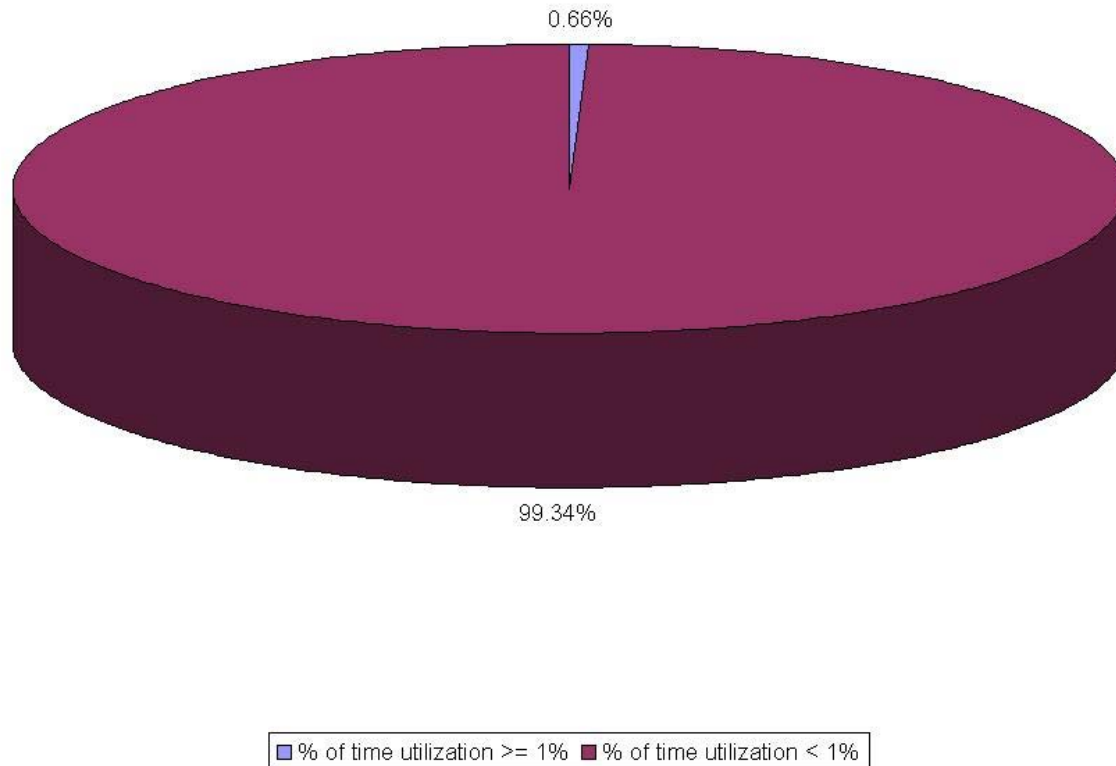
Server BW Utilization Data

LBLnet E-Mail Server BW Utilization Profile



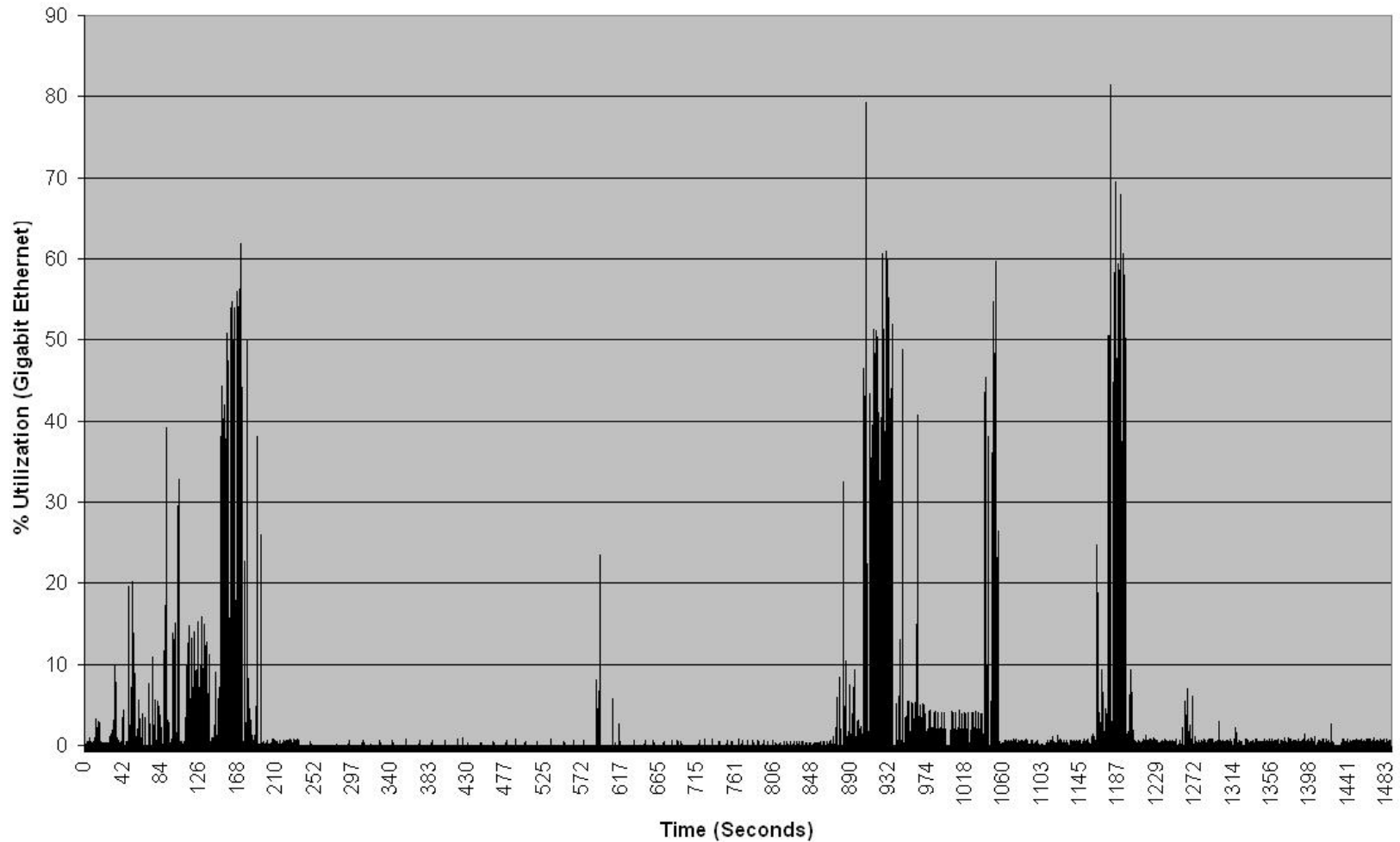
Server BW Utilization Data

LBLnet E-Mail Server Utilization Profile



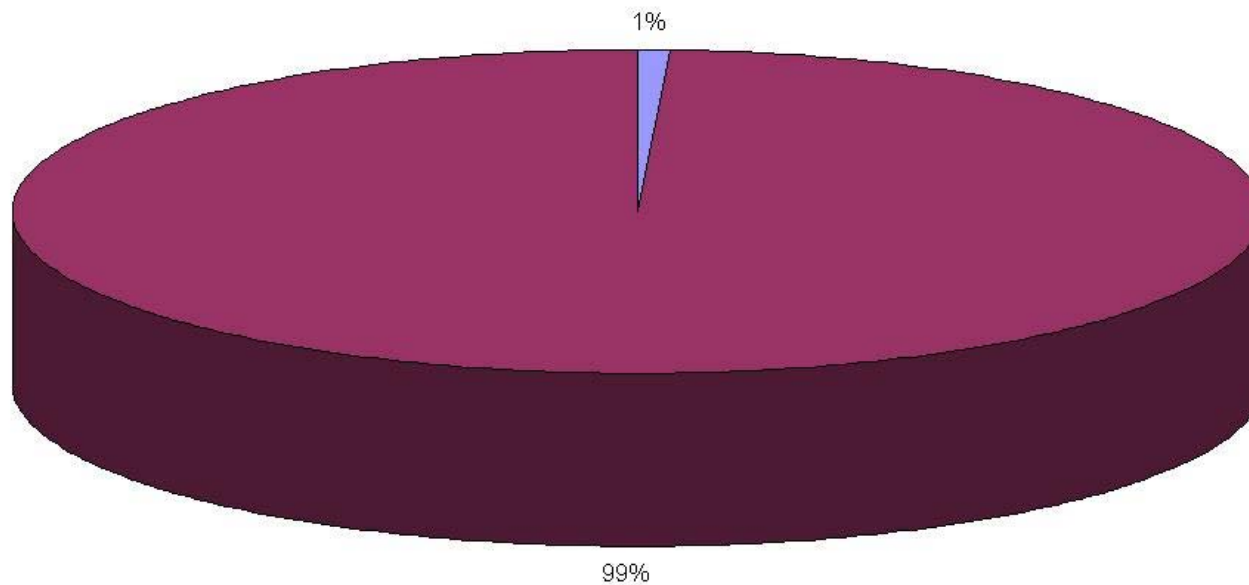
Server BW Utilization Data

File Server Bandwidth Utilization Profile



Server BW Utilization Data

File Server Utilization Profile



■ % of time utilization \geq 1% ■ % of time utilization $<$ 1%

Observations

- For these types of enterprise servers, there is clearly seems to be an opportunity to save energy
 - Of course this is not a very large sample
- In the file server case, utilization exceeds 50% several times in 30 minutes
 - Yet 99% of time utilization was at $< 1\%$

Thanks!

- Questions/comments?

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