

Adventures of Networking Blackboard

By: Peter Morrissey

Syracuse University

NYSERNET Tech Summit 2014

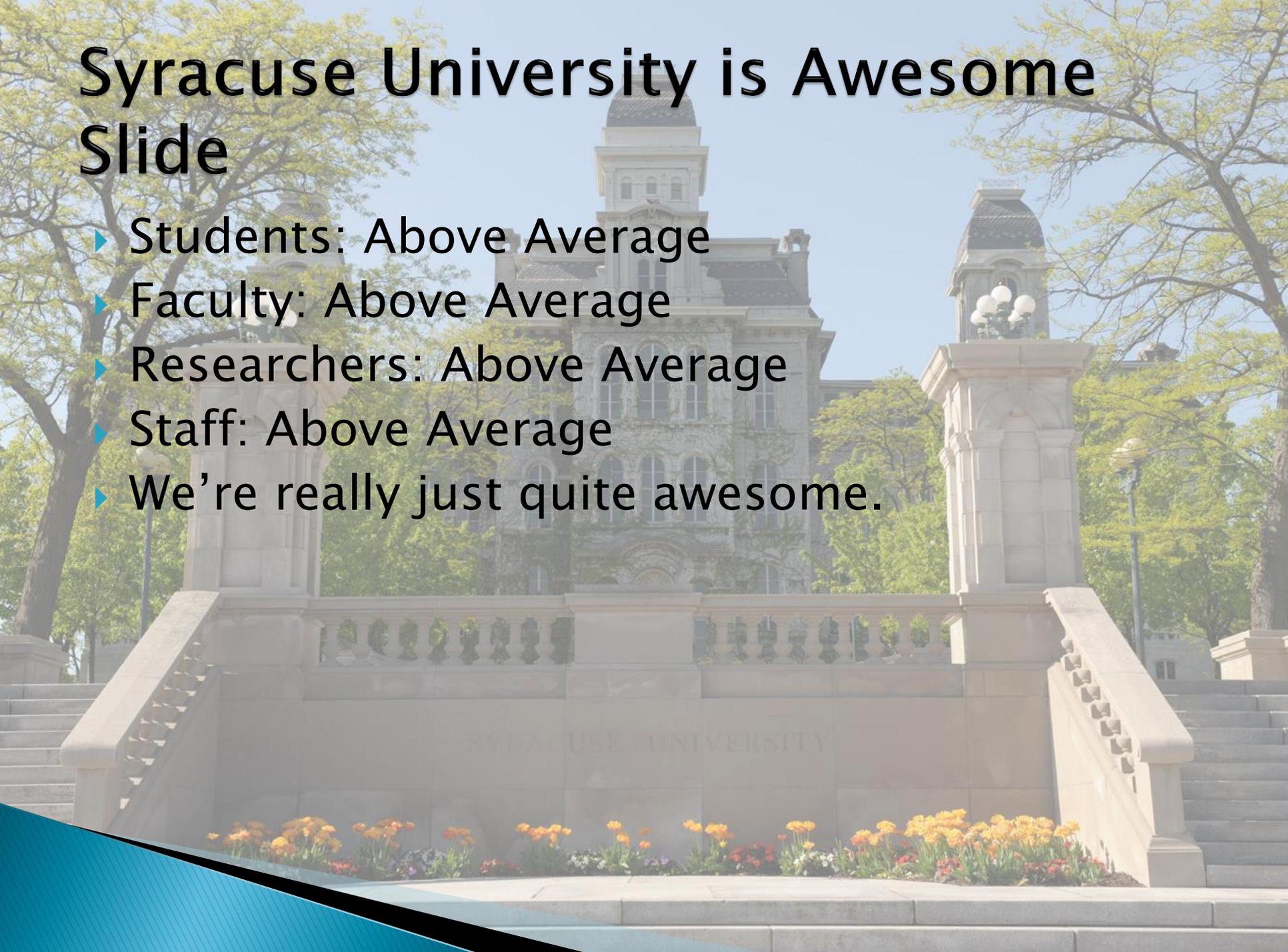
Marist College

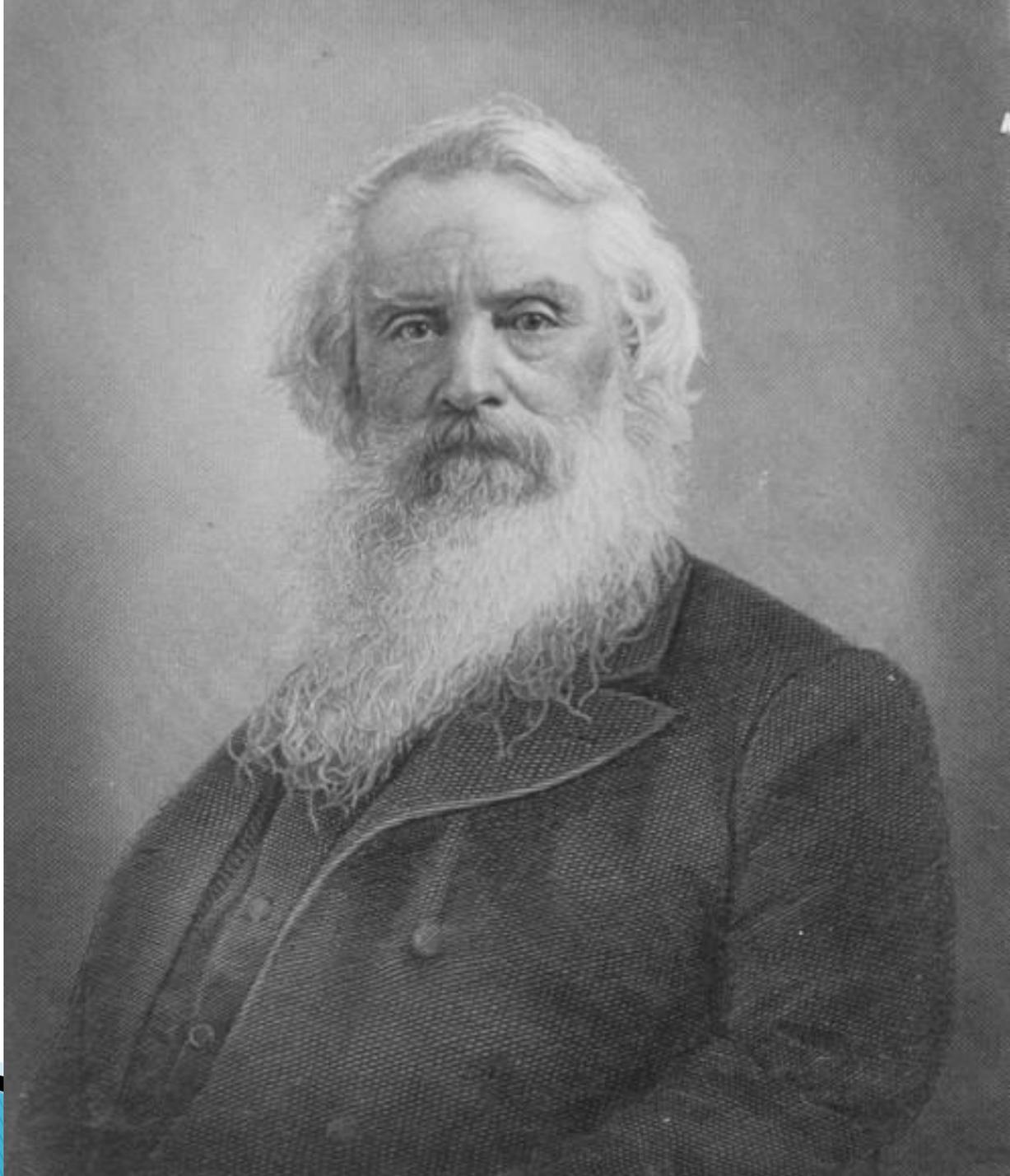
June 12, 2014

ppmorris@syr.edu

Syracuse University is Awesome Slide

- ▶ Students: Above Average
- ▶ Faculty: Above Average
- ▶ Researchers: Above Average
- ▶ Staff: Above Average
- ▶ We're really just quite awesome.





[Syracuse University Computing and Electronic Communications Policy](#)



Login Here

[Change Text Size](#) | [High Contrast Setting](#)

You are not logged in

PROTECT YOURSELF: Don't share your password with anybody, including your peers, friends, and family members. Treat your password like the PIN for your ATM card – as your secret!

USERNAME:

PASSWORD:

[Forgot Your Password?](#)

Login

Summer 2014 System

This is the Summer 2014 Blackboard system.

To go to the Spring/Fall Blackboard system, [Click here](#)

For questions or assistance, please contact the ITS Service Center at help@syr.edu or 315-440-2677.

Course Content Copy Request

This request is intended for instructors ONLY.

If you would like course content from a previous semester copied to a Summer 2014 course please click on the link below to complete a request form. If you would like content copied from a Summer 2011, 2012, or 2013 course please use the Blackboard Course Copy Tool located in the Control Panel.

[Request Form](#)

Need Help?



To Search for answers to your Blackboard questions, visit the [Answers self-help knowledge base](#). Contact the [ITS Service Center](#)

Blackboard at Syracuse University

- ▶ Requires lots of staff support
 - ▶ Multiple groups:
 - Application
 - Database
 - Storage
 - OS
 - Networking
 - Help Desk
- 

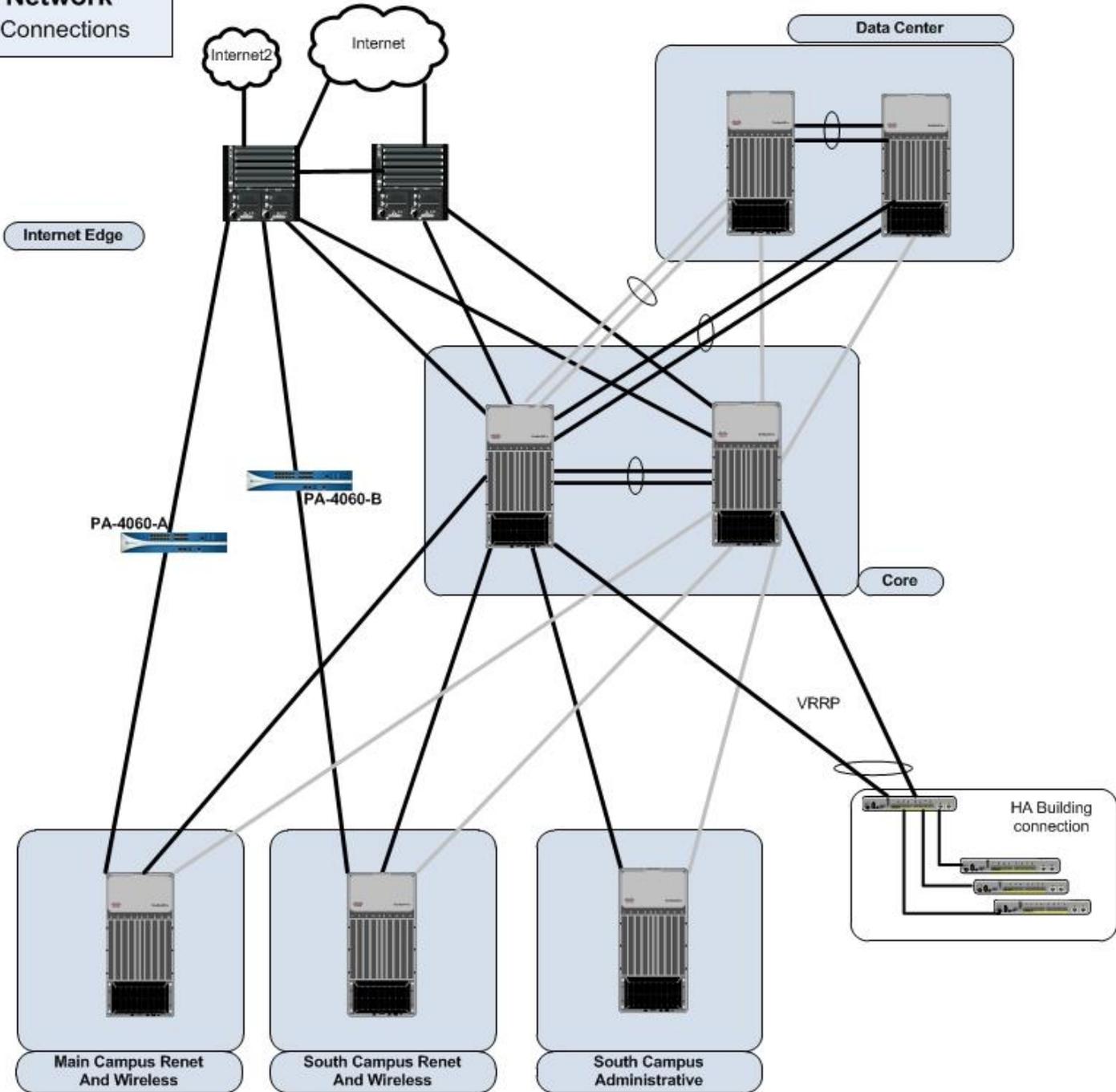
Unique Network Issues:

- ▶ World wide 24/7 access
 - ▶ Complex, Multi-tiered application
 - ▶ Lots of general problems at many layers
- 

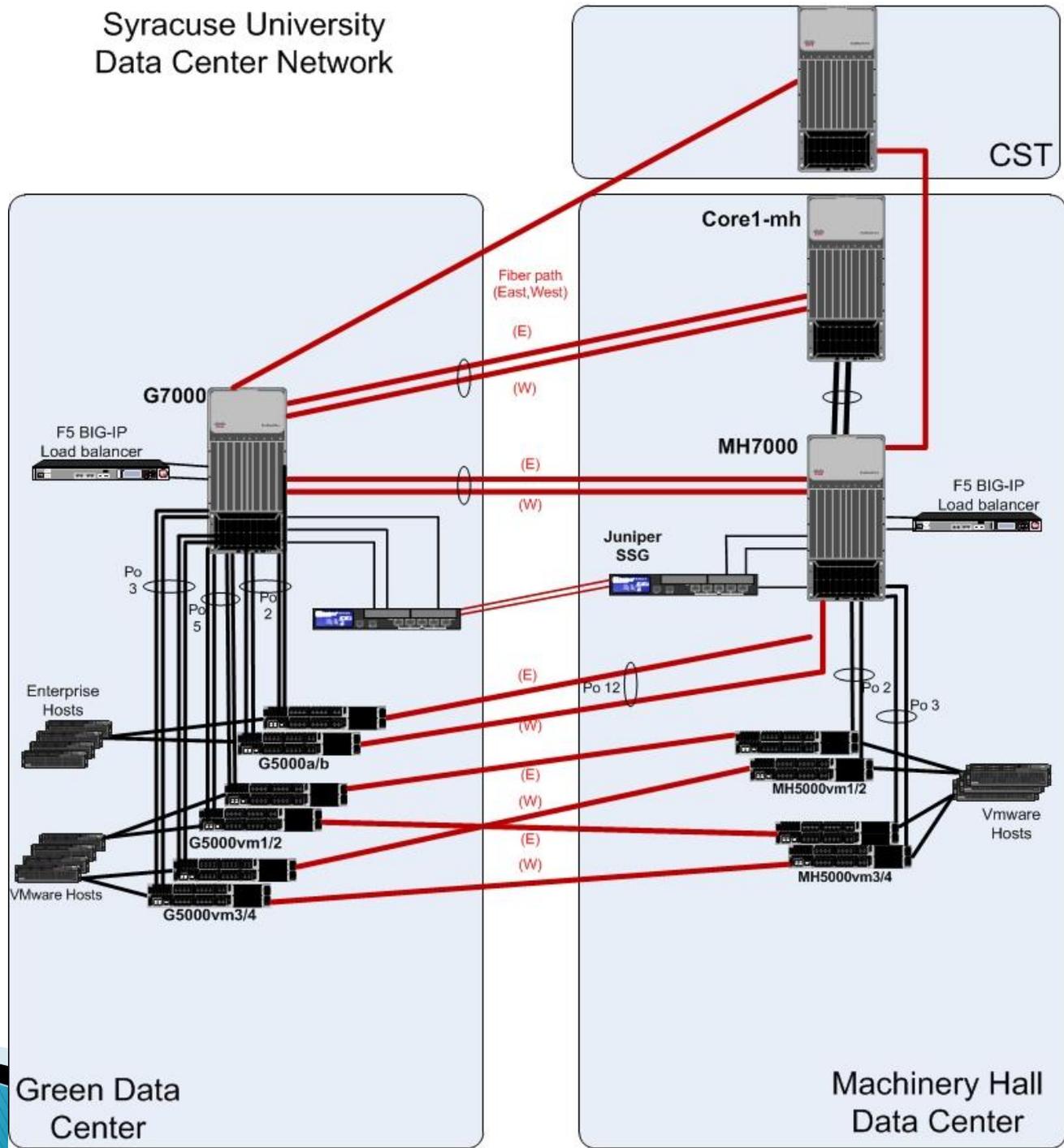
Non-unique issues:

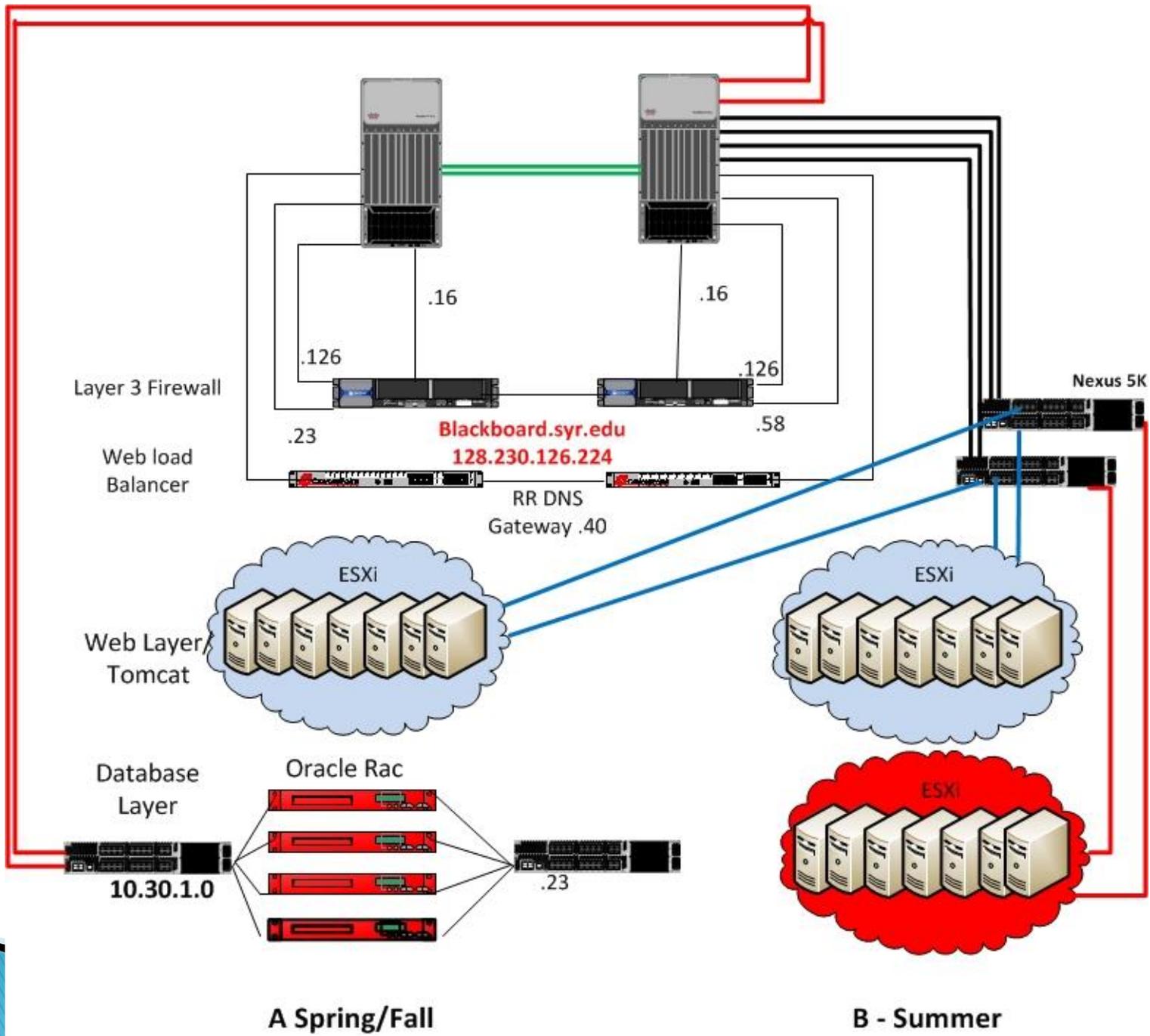
- ▶ Runs on the network like everything else.
 - ▶ People blame a lot of the problems on the network.
 - ▶ Occasionally the problem actually is the network.
- 

Core Network Routed Connections



Syracuse University Data Center Network





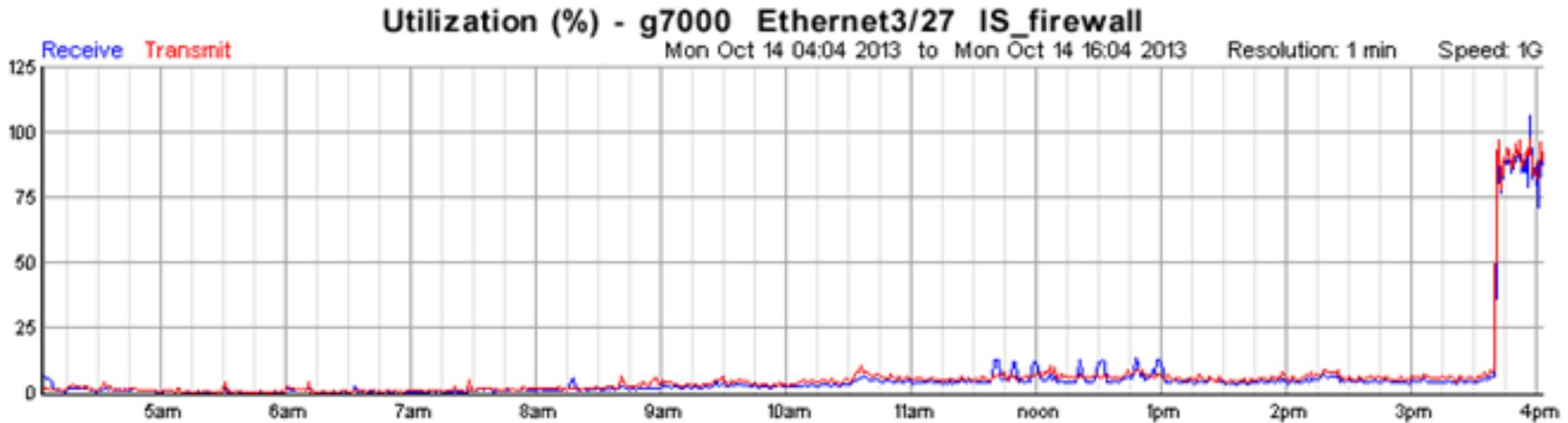
Statseeker Email Alert

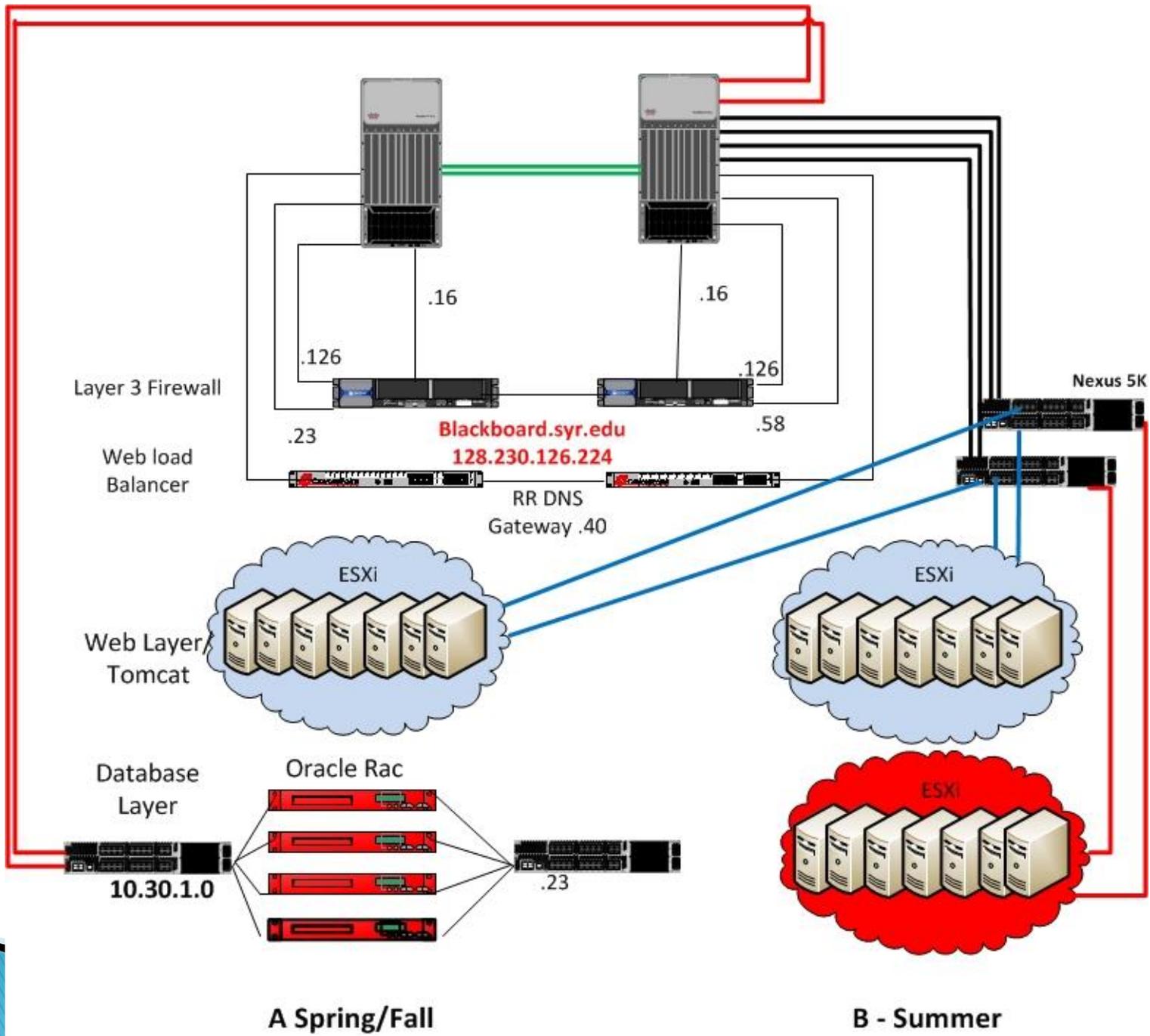
15:50:00 – g7000 – IS_firewall – Ethernet3/27 – Tx Utilization > 90% HIGH (port: Ethernet3/27)

15:55:00 – g7000 – IS_firewall – Ethernet3/27 – Tx Utilization > 90% HIGH (port: Ethernet3/27)

16:00:55 – g7000 – IS_firewall – Ethernet3/27 – Tx Utilization > 90% HIGH (port: Ethernet3/27)

Statseeker Utilization Graph





A Spring/Fall

B - Summer

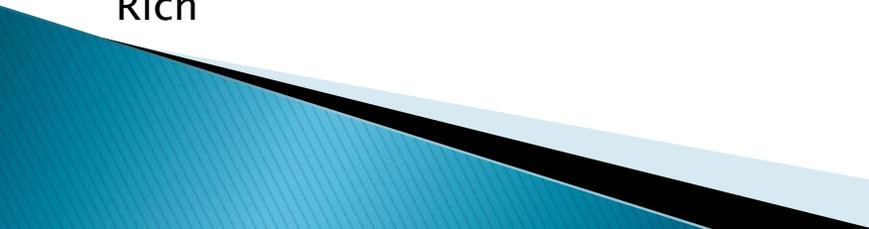
An email cry for help:

Josh, Pete:

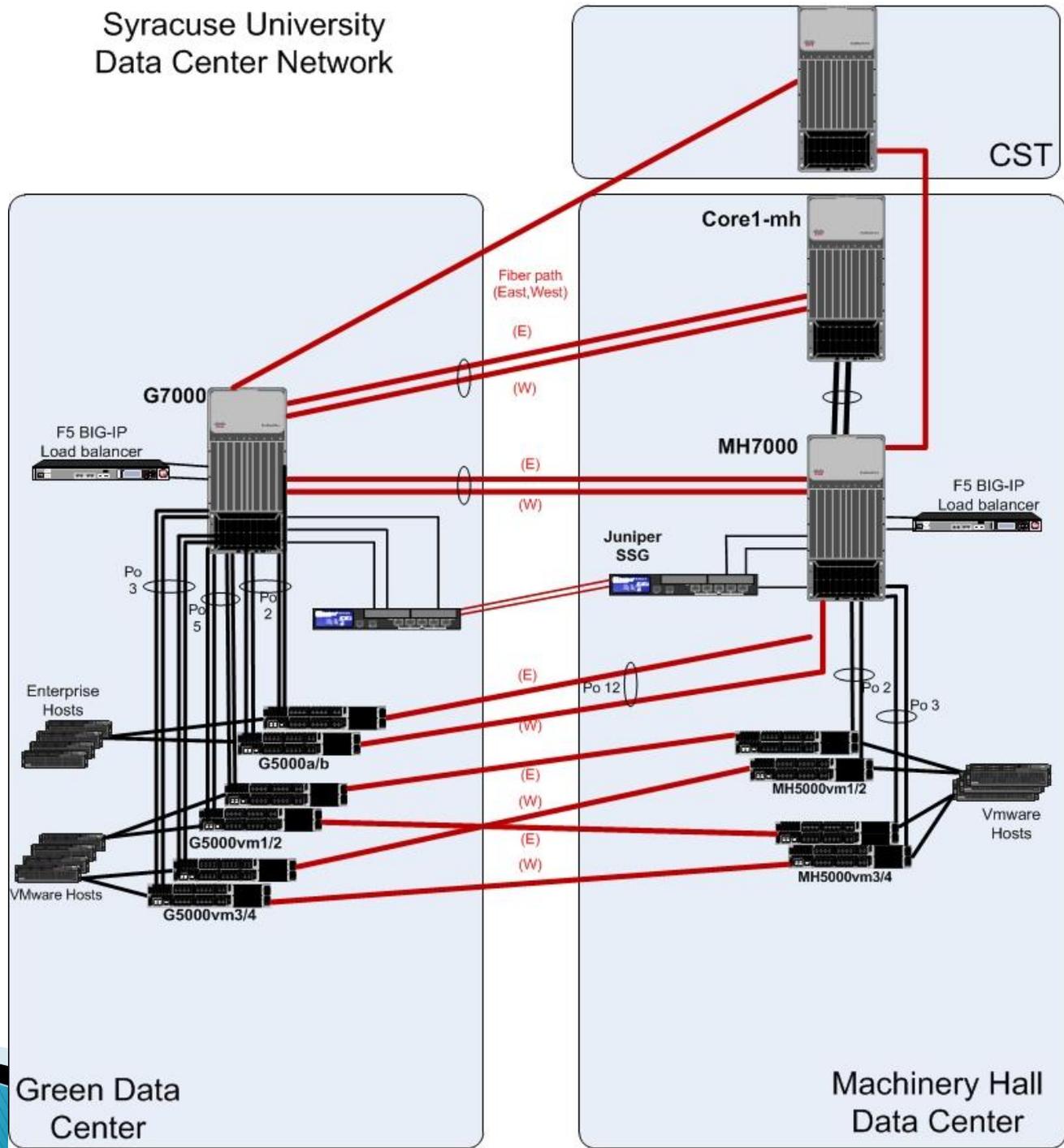
I'd like to loop you in on a recent effort we (the Blackboard and Oracle admins) have been making to address recent Blackboard performance problems, and I'm hoping to get some assistance from your areas in troubleshooting. In a nutshell, there has been slowness in the Blackboard site reported by users, our monitoring system, and observed by our staff. Sometimes it occurs when system load is not high. We have added system resources in the application and OS layers which has not changed the problem. We can't rule out an application problem completely, but one odd observation is that our summer systems which are not in use are currently exhibiting the same symptoms.

There is plenty of anecdotal evidence we can provide (such as slow file transfer times), but one observation that strikes us as very odd is that Hobbit shows recent increases in TCP connection times for several machines, not just those related to Blackboard. That can be seen in the following graphs... the top one is for a VM host, the 2nd a summer Bb virtual guest, the third a physical database server in RAC. The 4th shows a Fall/Spring Bb virtual guest which looks "normal" to us. Both our monitoring servers which are on different networks show the same trends, so I don't suspect any odd behavior in those.

Rich



Syracuse University Data Center Network



Problem resolved:

- ▶ -----Original Message-----

From: Downtime Notification List for the SU Community
[mailto:NOTIFY_ITS@LISTSERV.SYR.EDU] On Behalf Of ITS
Communications

Sent: Friday, September 20, 2013 3:02 PM

To: NOTIFY_ITS@LISTSERV.SYR.EDU

Subject: ITS Alert Update- Computing/Networking System
Disruption

- ▶
- ▶ This is an update message for the ITS Alert/Notification titled: it performance issues reported Problem Resolution:
- ▶ Progressively between 12:30pm and 2:00PM ET, the performance issues encountered earlier today with multiple services and applications were resolved. Connectivity between the main campus and the Green Data Center was degraded, and has been rerouted to backup channels. All services and applications appear to be operating normally.

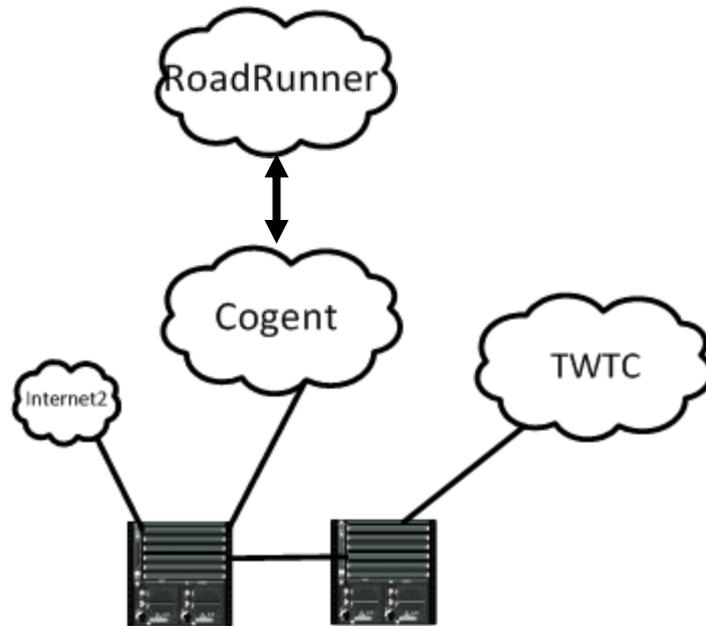
Traceroute from the boss:

From: Eric Sedore
Sent: Thursday, September 05, 2013 10:21 PM
To: Peter P Morrissey
Subject: RE: interesting

As requested, I must admit it looks really odd, especially the high response times in the first couple hops, and it appears to take a different route... but could be I just don't know what I am doing...

Tracing route to cpe-108-183-224-116.twcny.res.rr.com [108.183.224.116]
over a maximum of 30 hops:

```
 1  36 ms  37 ms  34 ms g7000-4.syr.edu [128.230.4.3]
 2  14 ms  15 ms  17 ms core1-mh-87-9.syr.edu [128.230.87.9]
 3  <1 ms  <1 ms  <1 ms backboneb.syr.edu [128.230.87.42]
 4  <1 ms  <1 ms  <1 ms te3-1.ccr01.syr01.atlas.cogentco.com [38.122.120.9]
 5   3 ms   3 ms   3 ms te9-2.ccr01.alb02.atlas.cogentco.com [154.54.27.165]
 6   7 ms   7 ms   7 ms te4-4.ccr01.jfk01.atlas.cogentco.com [154.54.42.142]
 7  27 ms  24 ms  23 ms te0-1-0-6.ccr21.jfk02.atlas.cogentco.com [154.54.40.34]
 8  11 ms  10 ms  11 ms be2060.ccr21.jfk05.atlas.cogentco.com [154.54.31.10]
 9  50 ms  50 ms  50 ms tata.jfk05.atlas.cogentco.com [154.54.12.18]
10 *    50 ms  52 ms Vlan888.icore2.NTO-NewYork.as6453.net [216.6.81.61]
11  57 ms  57 ms  57 ms Vlan575.icore2.NTO-NewYork.as6453.net [209.58.26.62]
12  71 ms  70 ms  68 ms 107.14.19.146
13  68 ms  70 ms  70 ms 66.109.6.75
14  77 ms  88 ms  77 ms ae4.esyrnyaw-rtr001.cny.northeast.rr.com [24.58.149.253]
15 *   3963 ms *   rdc-24-58-149-197.cny.east.twcable.com [24.58.149.197]
16  78 ms  78 ms  78 ms gig1-0-1.prisny05-10k002.nyroc.rr.com [24.24.18.235]
17 *    *    *   Request timed out.
```



Our favorite Math Professor

▶ > 16:00:00	LossRate: 2.3%	RTT average: 84.3
▶ > 16:30:00	LossRate: 1.6%	RTT average: 84.4
▶ > 17:00:00	LossRate: 2.3%	RTT average: 84.0
▶ > 17:30:00	LossRate: 2.9%	RTT average: 84.3
▶ > 18:00:00	LossRate: 3.3%	RTT average: 84.9
▶ > 18:30:00	LossRate: 2.9%	RTT average: 84.9
▶ > 19:00:00	LossRate: 3.4%	RTT average: 85.2
▶ > 19:30:00	LossRate: 4.8%	RTT average: 86.0
▶ > 20:00:00	LossRate: 5.2%	RTT average: 85.8
▶ > 20:30:00	LossRate: 6.9%	RTT average: 85.6
▶ > 21:00:00	LossRate: 8.0%	RTT average: 86.1
▶ > 21:30:00	LossRate: 10.6%	RTT average: 86.6
▶ > 22:00:00	LossRate: 10.0%	RTT average: 87.4
▶ > 22:30:00	LossRate: 9.1%	RTT average: 87.0
▶ > 23:00:00	LossRate: 9.1%	RTT average: 86.9

No problem found

- ▶ Performance to www.syr.edu
 - RTT: 38ms/37ms/39ms (ave/min/max) with no packet loss
 - This trace was started on Sep 3, 2013 1:36:48 PM.
- ▶ Performance to blackboard.syr.edu
 - RTT: 31ms/--ms/279ms (ave/min/max) with no packet loss
 - This trace was started on Sep 3, 2013 2:13:44 PM.
- ▶ Performance to myslice.syr.edu
 - RTT: 38ms/--ms/243ms (ave/min/max) with no packet loss
 - This trace was started on Sep 3, 2013 2:18:22 PM.

Cogent Response

- ▶ As previously mentioned, the issue that you report; specifically that remote users are experiencing "performance delays". The latency and/or packet loss that you are experiencing to this destination is due to occasional high traffic with some Cogent peers. In this case it, based on the traces you've provided it looks as if this is an issue with traffic to and from Time Warner Cable.
- ▶
- ▶ We have repeatedly requested augments to these congestion points and hope TWC will comply soon. While this has been escalated internally to the CEO level, we encourage you to also contact TWC customer support with your concerns and complaints.
- ▶
- ▶ Their delay is a major impediment to internet traffic overall and contrary to net neutrality requirements. Our peering engineers will continue to address this on a daily basis until resolved.
- ▶
- ▶ If you have any further questions please feel free to contact us by e-mail at support@cogentco.com or by phone at 877-7COGENT (877-726-4368).

Verizon too:

Peter,

The master ticket for the Verizon peering capacity issue is HD5285442.

Regards,
Cogent Communications



“cogent peering”

Topics: [Broadband](#) | [Business](#) | [Network hardware and software](#)

Cogent won't enter peering deals with carriers, will help upgrade broadband connections

March 24, 2014 | By [Jim Barthold](#)

Cogent Gearing for Another Peering Battle



News You Could

Sprint And Cogent Remind Us That The Internet Is Held Together With Handshakes And Duct Tape

from the *peer-this* dept

It seems that every few years we have some sort of story of a major internet provider cutting off

an [Peering Disputes](#)

- 2013
 - Cogent ([Netflix](#)) / [Verizon](#)
 - [Unbalanced Peering, and the Real Story Behind the Verizon/Cogent Dispute](#), David Young, Verizon June 19, 2013 ("What the article doesn't say, however, is that Cogent is not compliant with one of the basic and long-standing requirements for most settlement-free peering arrangements: that traffic between the providers be roughly in balance. When the traffic loads are not symmetric, the provider with the heavier

Verizon, Cogent Engage in Peering Spat

Rerouting via TWTC

These are the three TimeWarner Class B's that I believe are most commonly used in our area:

24.24.0.0

67.246.0.0

108.183.0.0

This would cover at least part of
Verizon:

74.111.0.0

Math Professor says?

I'd guess a routing change was made between 19:00 and 20:00 Friday.

To someone watching, the drop in RTTs was clear. Stats are for the previous half-hour.

Source=SU:

19:30:00 LossRate: 0.2% RTT average: 73.4

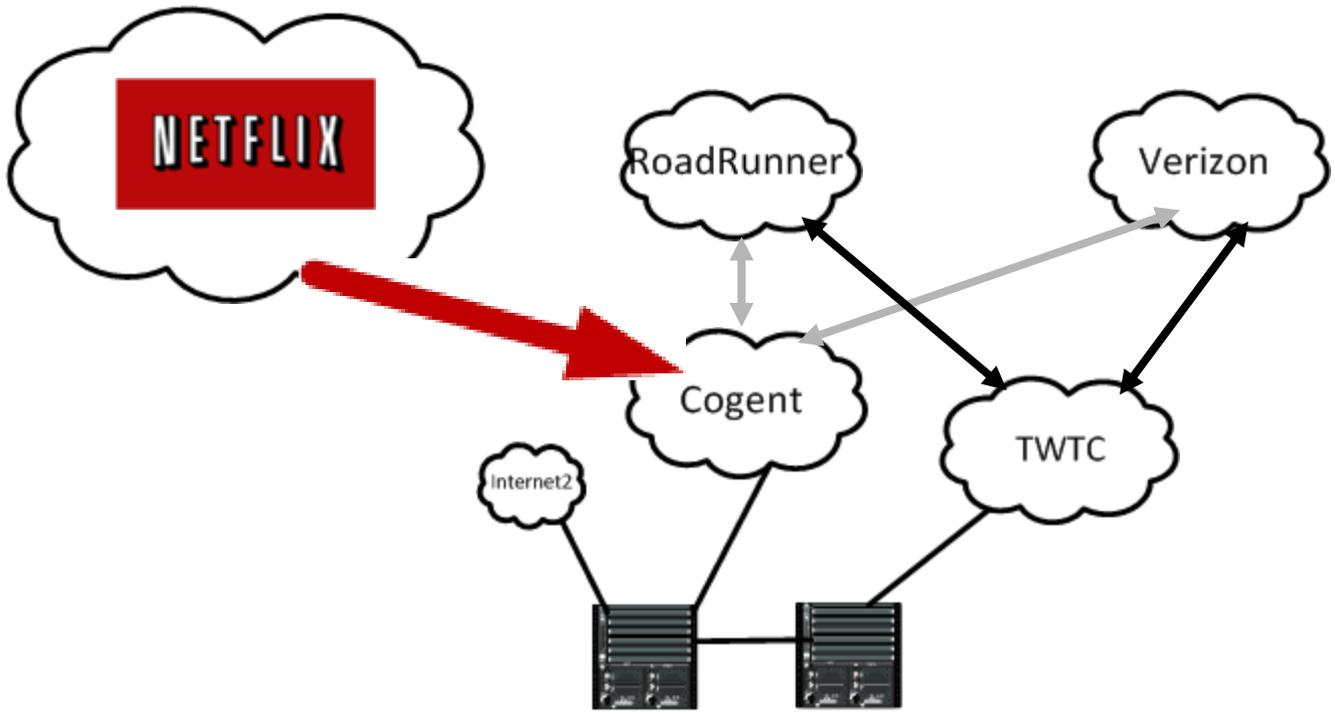
20:00:00 LossRate: 0.0% RTT average: 41.9

Destination=SU:

19:30:00 LossRate: 0.3% RTT average: 75.0

20:00:00 LossRate: 0.0% RTT average: 43.2

The route out of SU is now TW only. And it seems RR's 74.79.... was included (thanks, Peter).



▶ ..and so it goes...