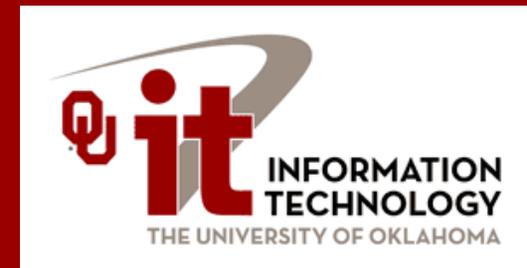


Oklahoma Science, Technology, Engineering, and Mathematics Mentorship Program



What is the OSTEMMP?



- The Oklahoma STEM Mentorship Program is an educational outreach connecting networking professionals from OU, OSU, OneNet, and other institutions with students in the technology field.
- It is part of an NSF grant to enhance Oklahoma's educational and research capability through network improvements.

- **The goal:**

IDENTIFY, DEVELOP and RECRUIT Talent

- Activities include:
 - Presentations to students throughout OK
 - Job shadowing opportunities (on-site & virtual)

Job Shadowing

- On-Site
 - Schedule a time with us to see what we do!
- Virtual
 - e-mail us at network@ou.edu (OU IT Network Team)
 - Facebook: [oknetworkmentor@groups.facebook.com](https://www.facebook.com/groups/oknetworkmentor)



<http://www.oscer.ou.edu/ostemmp.php>



- Jobs at OU
 - <http://jobs.ou.edu>
- Jobs at OneNet
 - <http://www.okhighered.org/job-opportunities/>

About This Presentation

- What do I do in the IT field?
- Lessons learned for getting this job.
- Recommendations for keeping the job.
- Being successful in this field.



- Zane Gray:
 - B.S. Chemical Engineering (OU 1996)
 - USAF network deployments (1996-2001)
 - OU computer networking (2001-present)

- Married since 1993 to an OSSM alumna!
- Nine (yes, “9”) kids
- One ball python (I hate snakes!)
- Two cats (adopted strays)

So, what's it like?

- Warning... PG-13 material ahead!

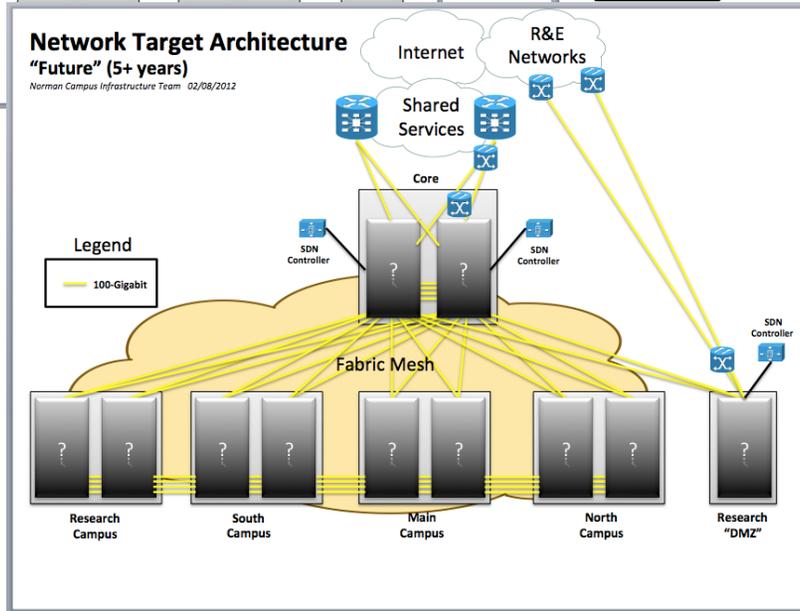
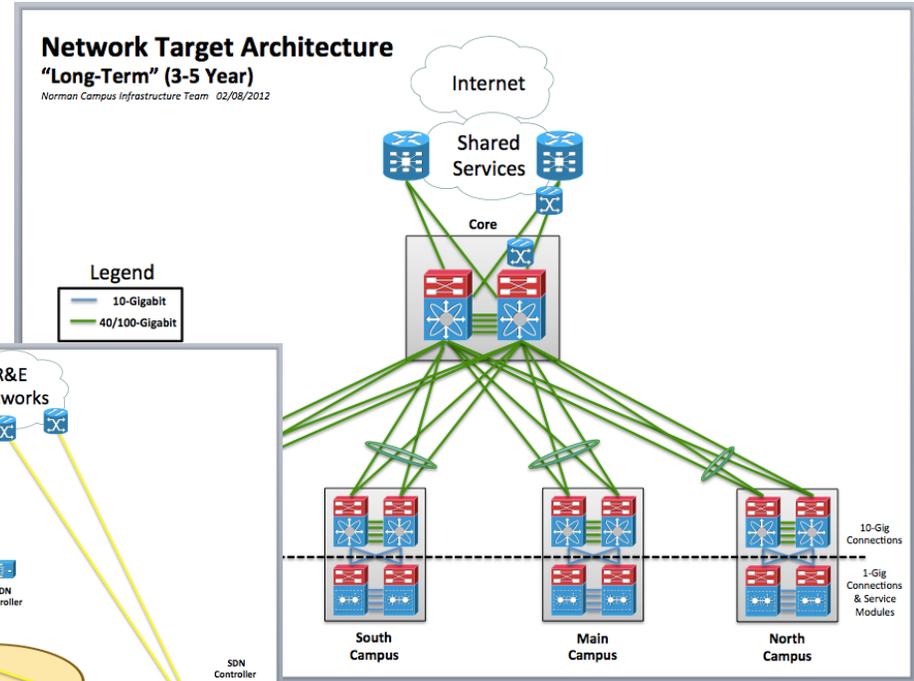
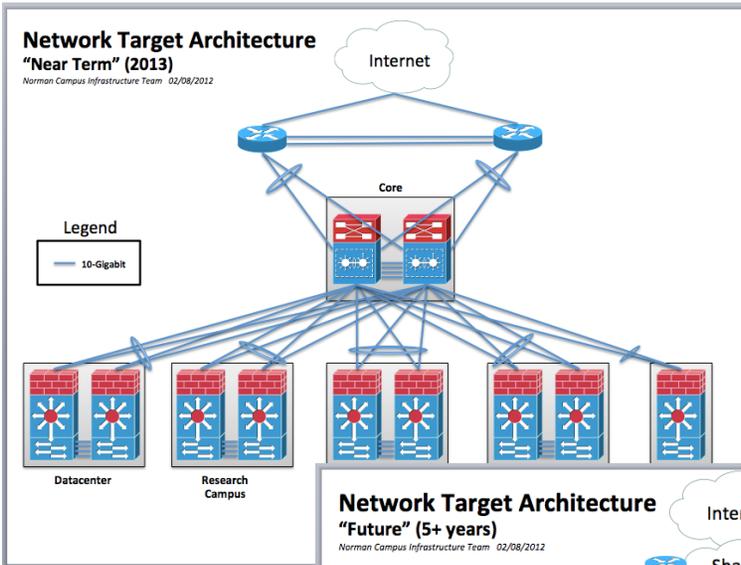


About My Job (Manager)



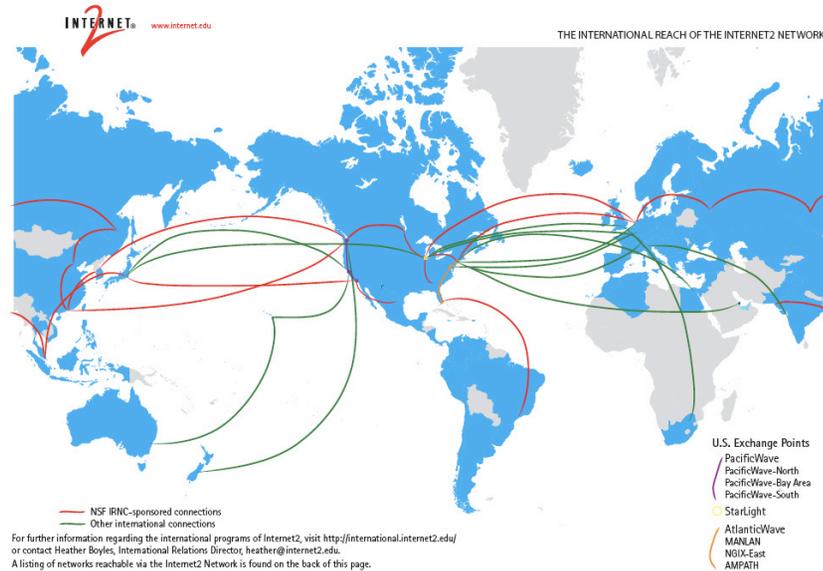
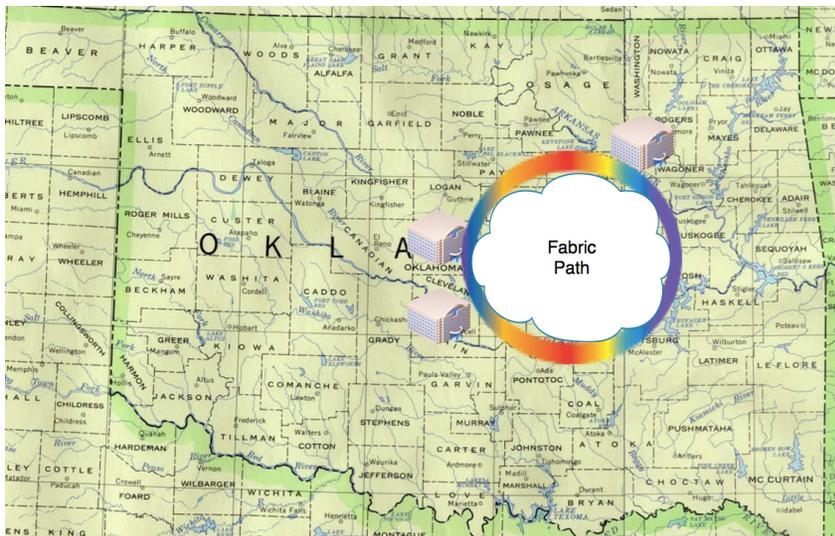
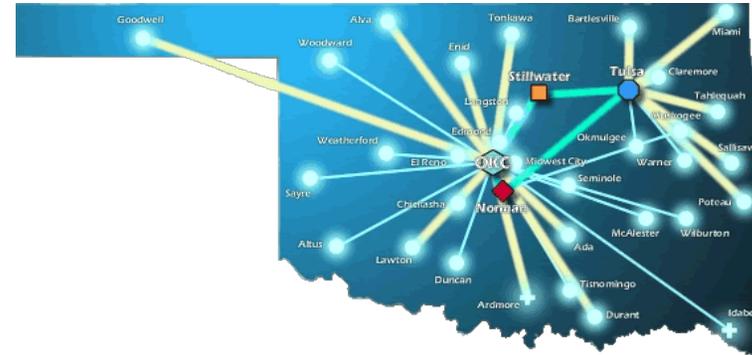
- OU IT Network Services:
 - Connect 200,000+ “unique” devices this year!
 - Support 30,000+ “wireless” users every day.
 - Support 15,000+ “wired” devices every day.
 - Support ~2000 wireless access points
 - Support ~1200 security cameras
 - Support ~1250 network switches and routers
 - Support ~8000 telephony devices (VoIP and analog)
 - Over 200 physical and virtual servers
 - Migrating to a single datacenter that spans three cities

Strategic Planning and Vision

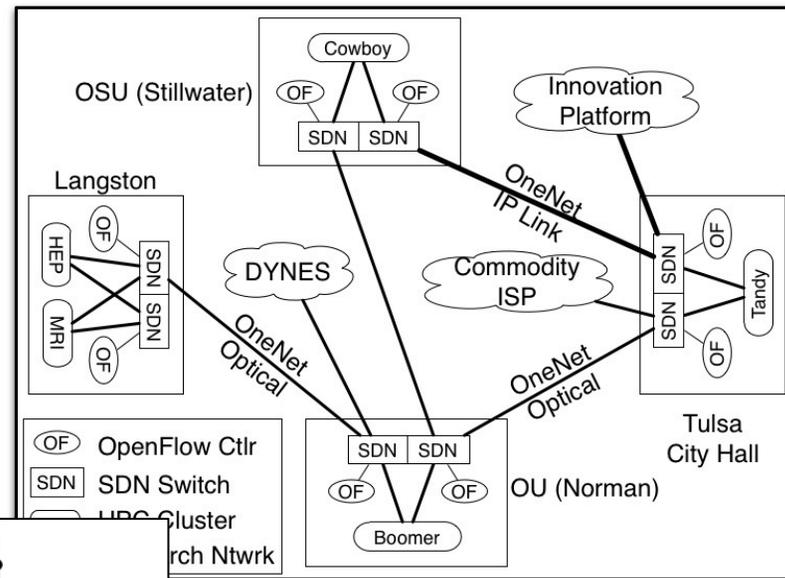


National Research & Education Networks (World-Wide)

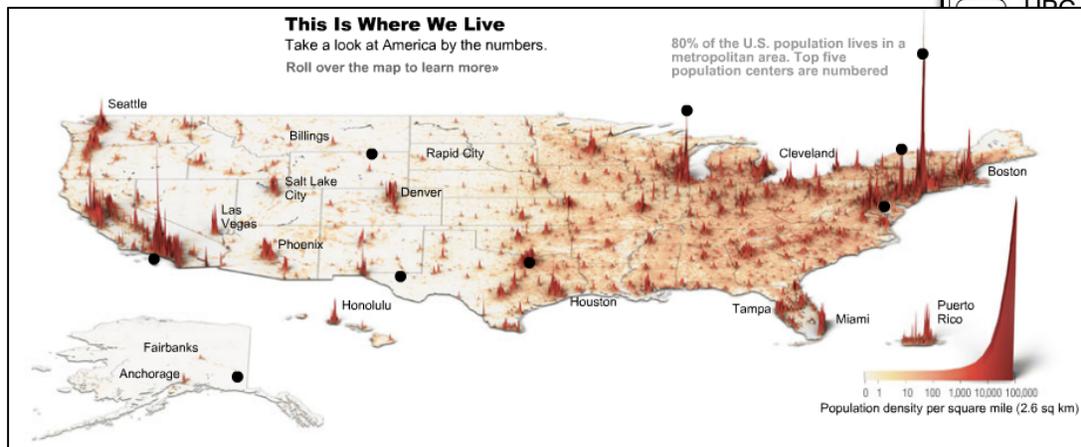
The Level 3 Network



Trends in Technology Landscapes



Software Defined Networking

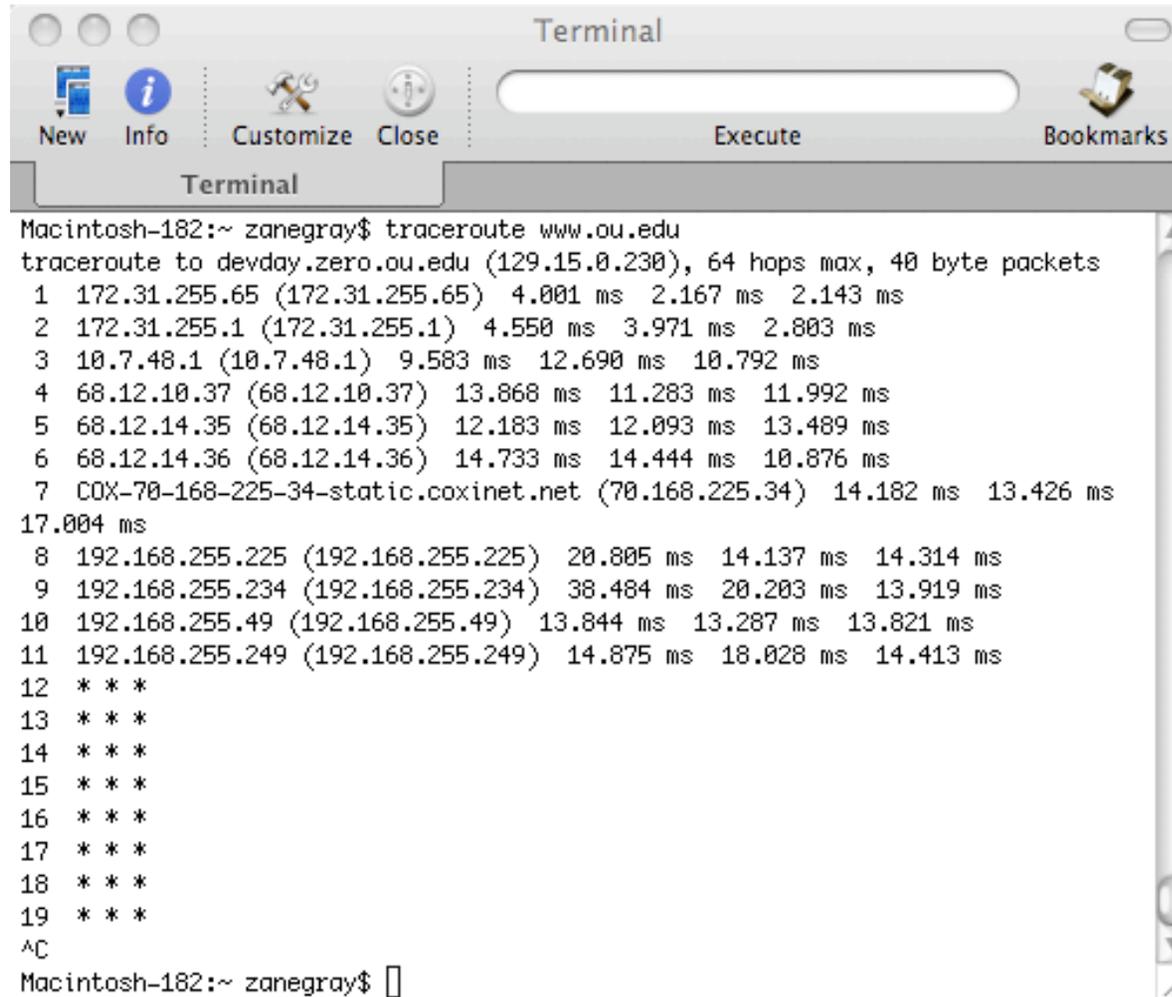


Data Visualization

How Do We Manage It All?

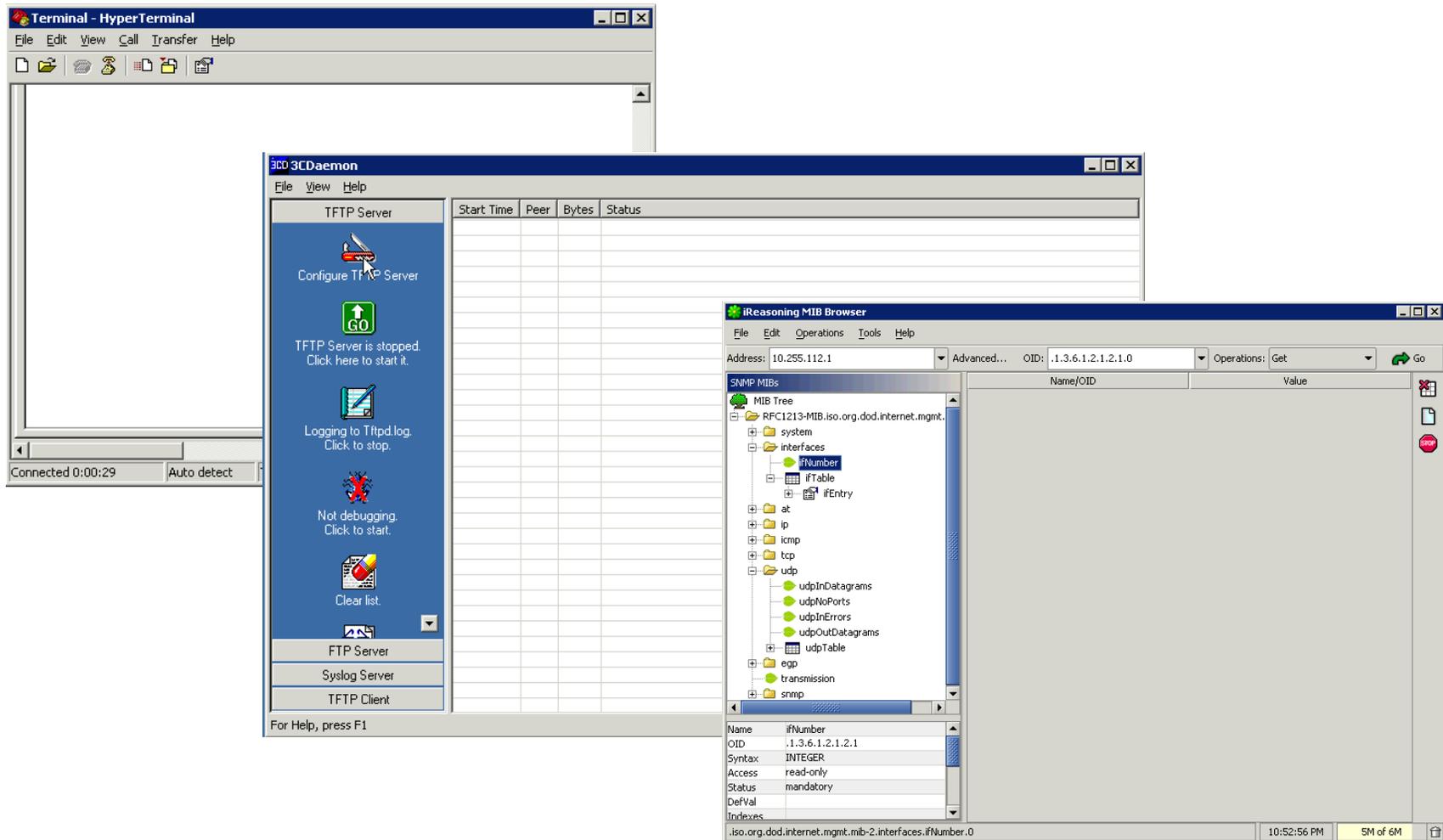


Tools of the Trade



```
Macintosh-182:~ zanegray$ traceroute www.ou.edu
traceroute to devday.zero.ou.edu (129.15.0.230), 64 hops max, 40 byte packets
 1 172.31.255.65 (172.31.255.65)  4.001 ms  2.167 ms  2.143 ms
 2 172.31.255.1 (172.31.255.1)  4.550 ms  3.971 ms  2.803 ms
 3 10.7.48.1 (10.7.48.1)  9.583 ms  12.690 ms  10.792 ms
 4 68.12.10.37 (68.12.10.37)  13.868 ms  11.283 ms  11.992 ms
 5 68.12.14.35 (68.12.14.35)  12.183 ms  12.093 ms  13.489 ms
 6 68.12.14.36 (68.12.14.36)  14.733 ms  14.444 ms  10.876 ms
 7 COX-70-168-225-34-static.coxinet.net (70.168.225.34)  14.182 ms  13.426 ms
17.004 ms
 8 192.168.255.225 (192.168.255.225)  20.805 ms  14.137 ms  14.314 ms
 9 192.168.255.234 (192.168.255.234)  38.484 ms  20.203 ms  13.919 ms
10 192.168.255.49 (192.168.255.49)  13.844 ms  13.287 ms  13.821 ms
11 192.168.255.249 (192.168.255.249)  14.875 ms  18.028 ms  14.413 ms
12 * * *
13 * * *
14 * * *
15 * * *
16 * * *
17 * * *
18 * * *
19 * * *
^C
Macintosh-182:~ zanegray$
```

Tools of the Trade



Tools of the Trade

Client OS' (1980's and Today)

```
Current time is 15:28:47.00
Enter new time:

Microsoft(R) MS-DOS(R) Version 3.30a
(C)Copyright Microsoft Corp 1981-1987

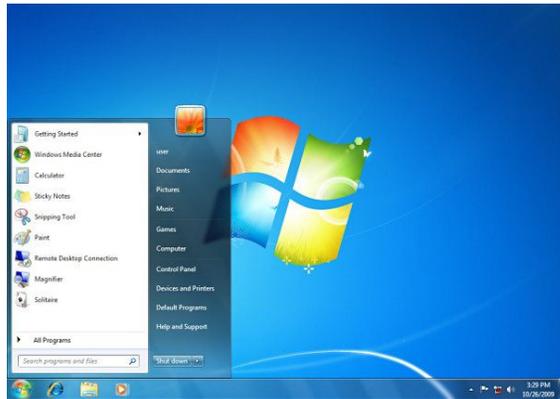
A)dir /u

Volume in drive A: has no label
Directory of A:\

COMMAND  CUM  ANSI  SYS  APPEND  EXE  ASSIGN  CUM  ATTRIB  EXE
CHKDSK   CUM  CUM   CUM   COUNTRY  SYS  DISKCOMP  CUM  DISCOPY  CUM
DISPLAY  SYS  DRIVER  SYS  EDLIN   CUM  EXE2BIN  EXE  FASTOPEN  EXE
FDISK    CUM  FIND   EXE  FORMAT  CUM  GRAPHIC  CUM  LABEL  CUM
GZOC     CPI  GRAPHICS  CUM  JOIN    EXE  KEYB    CUM  LABEL  CUM
MODE     CUM  MORE   CUM  NLSFUNC  EXE  PRINT   CUM  RECOVER  CUM
SELECT   CUM  SORT   EXE  SUBST   EXE  SYS     CUM  TREE    CUM

35 File(s)  861696 bytes free

A)_
```



Network OS' (1980's and Today)

```
Cisco Internetwork Operating System Software
IOS (tm) OS Software (IOS), Version 10.2(2), RELEASE SOFTWARE (fc1)
Copyright (c) 1986-1994 by Cisco Systems, Inc.
Compiled Thu 15-Dec-94 15:39 by kmac
Image text-base: 0x00001000, data-base: 0x003BCF00

ROM: System Bootstrap, Version 4.6(5), SOFTWARE

depcle mode uptime is 2 minutes
System restarted by reload
System image file is "igs3-k.102-2", booted via tftp from 171.69.1.129

CSC4 (68040) processor with 16784K bytes of memory.
X.25 software, Version 2.0, NET2, BFB and GOSIP compliant.
Bridging software.
2 MCI controllers (4 Ethernet, 4 Serial).
4 Ethernet/ISBS 802.3 interfaces.
4 Serial network interfaces.
32K bytes of non-volatile configuration memory.

Configuration register is 0x0
```

```
Cisco IOS Software, C2600 Software (C2600-ADVENTERPRISEK9-M), Version 12.4(10a), RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2006 by Cisco Systems, Inc.
Compiled Wed 11-Oct-06 18:15 by prod.rel.team
Image text-base: 0x800080F0, data-base: 0x62B41790

This product contains cryptographic features and is subject to United States and local country laws governing import, export, transfer and use. Delivery of Cisco cryptographic products does not imply third-party authority to import, export, distribute or use encryption. Importers, exporters, distributors and users are responsible for compliance with U.S. and local country laws. By using this product you agree to comply with applicable laws and regulations. If you are unable to comply with U.S. and local laws, return this product immediately.

A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wli/export/crpto/tool/stqpg.html

If you require further assistance please contact us by sending email to
export@cisco.com.

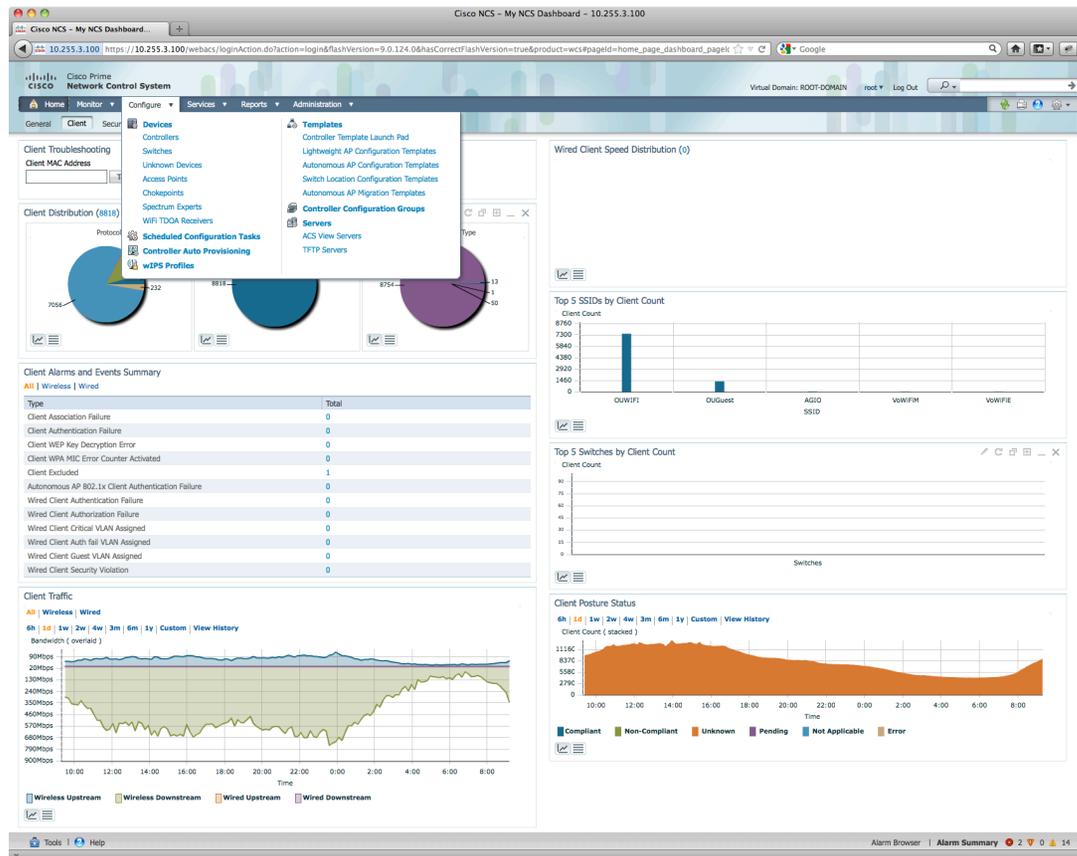
Cisco 2610M (MPC860P) processor (revision 1.0) with 127627K/3448K bytes of memory.
Processor board ID JAD06270J10
M80 processor part number 5, mask 2
1 FastEthernet interface
4 Serial(sync/async) interfaces
32K bytes of NVRAM.
49152K bytes of processor board System flash (Read/Write)

--- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]:
```

Tools of the Trade

○ But that's changing!

- TRILL
- OpenFlow
- CAPWAP
- ~50% Parity



- Technical Stuff for Network Engineers...
 - Know the OSI model. It will save you days of troubleshooting time!



Troubleshooting

File Edit View Go Capture Analyze Statistics Telephony Tools Help

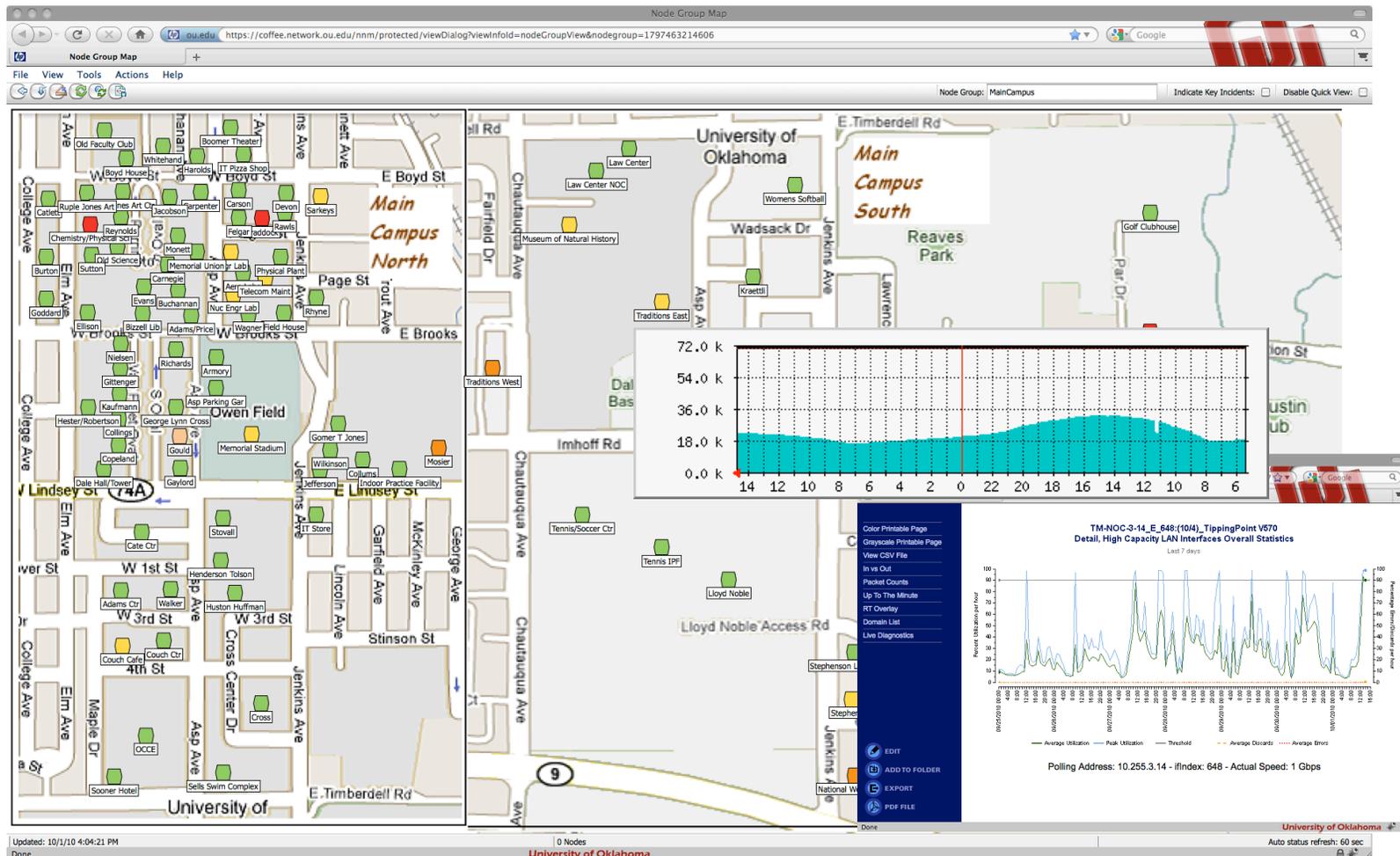
Filter: Expression... Clear Apply

No.	Time	Source	Destination	Protocol	Info
15	5.040107	70:f1:a1:10:9d:98	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.59.14
16	5.849089	78:ca:39:bb:b2:b6	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.59.232
17	6.058014	AppleCom_17:b6:6d	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.63.42
18	6.266865	HonHaiPr_a1:85:57	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.60.60
19	6.475765	Apple_75:6f:13	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.63.217
20	6.684634	HonHaiPr_92:ec:6a	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.57.66
21	7.311348	IntelCor_8b:82:78	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.36.42
22	7.520271	AppleCom_02:c1:8a	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.63.58
23	7.729139	70:f1:a1:10:9d:98	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.59.14
24	8.146923	LiteonTe_6d:a2:b4	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.45.99
25	8.773698	Apple_ba:46:2a	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.63.105
26	8.982565	IntelCor_aa:52:e4	Broadcast	ARP	Who has 10.195.32.1? Tell 10.195.51.253
27	9.609243	70:f1:a1:10:9d:98	Broadcast	ARP	Who has 10.195.
28	9.818120	70:f1:a1:10:9d:98	Broadcast	ARP	Who has 10.195.
29	10.235938	IntelCor_1f:18:08	Broadcast	ARP	Who has 10.195.
30	11.280417	f8:1e:df:f3:4a:d7	Broadcast	ARP	Who has 10.195.
31	11.489310	Apple_77:17:76	Broadcast	ARP	Who has 10.195.
32	11.907093	HonHaiPr_77:64:ae	Broadcast	ARP	Who has 10.195.
33	12.115968	Apple_29:02:d6	Broadcast	ARP	Who has 10.195.

▶ Frame 1 (60 bytes on wire, 60 bytes captured)
▶ Ethernet II, Src: d8:a2:5e:92:14:3e (d8:a2:5e:92:14:3e), Dst: Broadcast (ff:ff:ff:ff:ff:ff)
▶ Address Resolution Protocol (request)



Operations & Maintenance

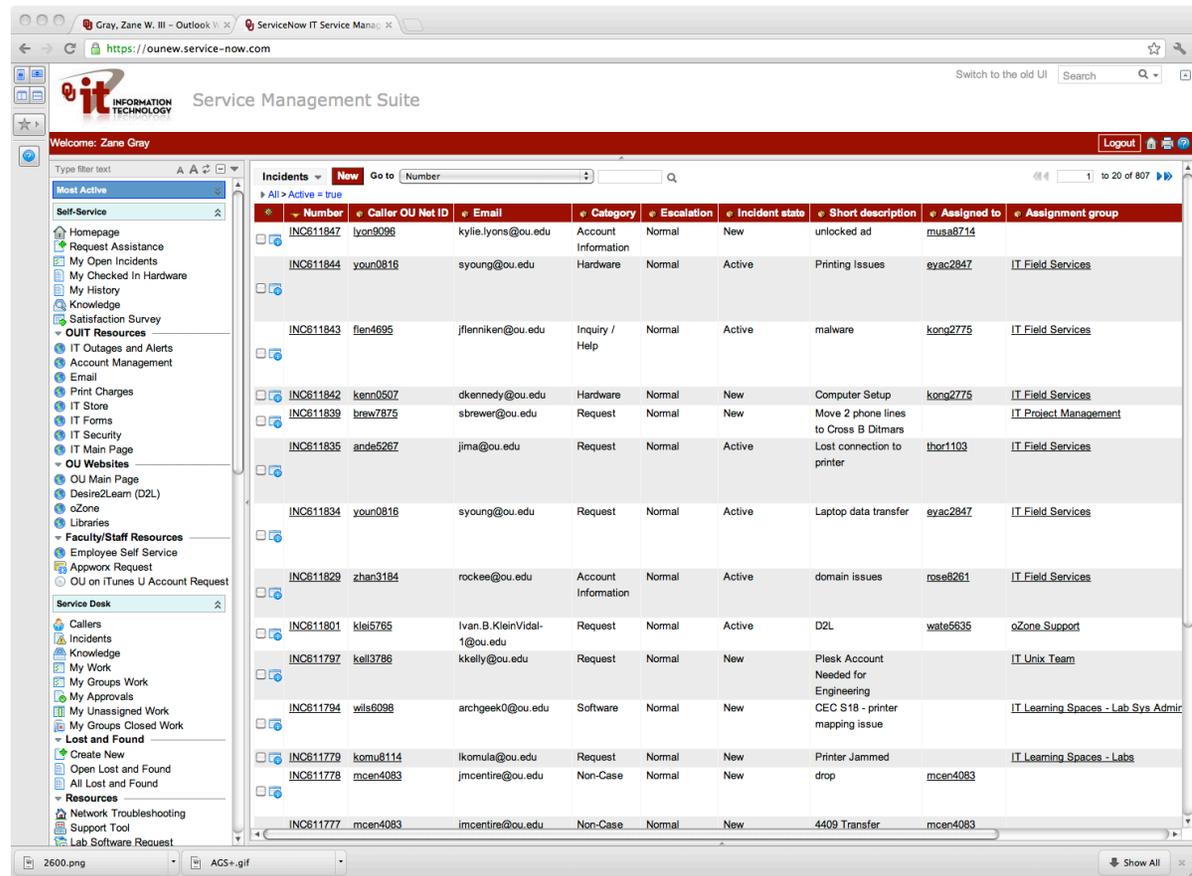


<http://www.oscer.ou.edu/ostemmp.php>

Change Management

- Change Management and Control is a Necessary Evil

- Process
- Compliance
- Knowledge
- Audit Trail

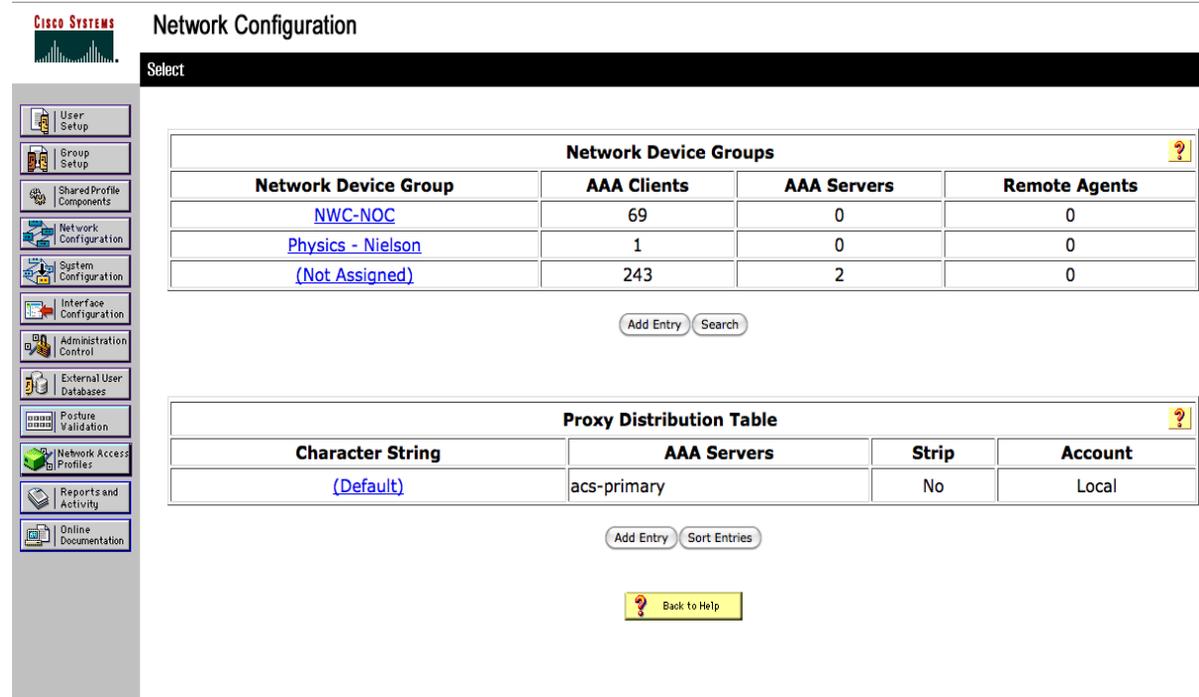


The screenshot displays the ServiceNow IT Service Management Suite interface. The main content area shows a table of incidents with the following columns: Number, Caller OU Net ID, Email, Category, Escalation, Incident state, Short description, Assigned to, and Assignment group. The table contains 15 rows of incident data.

Number	Caller OU Net ID	Email	Category	Escalation	Incident state	Short description	Assigned to	Assignment group
INC811847	lyon9096	kylie.lyons@ou.edu	Account Information	Normal	New	unlocked ad	mus8714	
INC811844	you0816	syoung@ou.edu	Hardware	Normal	Active	Printing Issues	eyac2847	IT Field Services
INC811843	flen4695	jfenniken@ou.edu	Inquiry / Help	Normal	Active	malware	kong2775	IT Field Services
INC811842	kenn0507	dkennedy@ou.edu	Hardware	Normal	New	Computer Setup	kong2775	IT Field Services
INC811839	sbrew7875	sbrewer@ou.edu	Request	Normal	New	Move 2 phone lines to Cross B Ditmars		IT Project Management
INC811835	ande5267	jima@ou.edu	Request	Normal	Active	Lost connection to printer	thor1103	IT Field Services
INC811834	you0816	syoung@ou.edu	Request	Normal	Active	Laptop data transfer	eyac2847	IT Field Services
INC811829	zhan3184	rockee@ou.edu	Account Information	Normal	Active	domain issues	rose8261	IT Field Services
INC811801	klei5765	Ivan.B.KleinVidal-1@ou.edu	Request	Normal	Active	D2L	wate5635	oZone Support
INC811797	kell3786	kkelly@ou.edu	Request	Normal	New	Plesk Account Needed for Engineering		IT Unix Team
INC811794	wils0098	archgeek0@ou.edu	Software	Normal	New	CEC S18 - printer mapping issue		IT Learning Spaces - Lab Sys Admin
INC811779	komu8114	ikomula@ou.edu	Request	Normal	New	Printer Jammed		IT Learning Spaces - Labs
INC811778	mcen4083	jmcentire@ou.edu	Non-Case	Normal	New	drop	mcen4083	
INC811777	mcen4083	jmcentire@ou.edu	Non-Case	Normal	New	4409 Transfer	mcen4083	

Change Control

- AAA
 - Authentication
 - Authorization
 - Accounting



The screenshot displays the Cisco Systems Network Configuration interface. On the left is a vertical navigation menu with icons for User Setup, Group Setup, Shared Profile Components, Network Configuration, System Configuration, Interface Configuration, Administration Control, External User Databases, Posture Validation, Network Access Profiles, Reports and Activity, and Online Documentation. The main content area is titled "Network Configuration" and features a "Select" dropdown menu. Below this, there are two tables. The first table, "Network Device Groups", lists three groups: "NWC-NOC" (69 AAA Clients, 0 AAA Servers, 0 Remote Agents), "Physics - Nielson" (1 AAA Client, 0 AAA Servers, 0 Remote Agents), and "(Not Assigned)" (243 AAA Clients, 2 AAA Servers, 0 Remote Agents). The second table, "Proxy Distribution Table", lists one entry: "(Default)" with "acs-primary" AAA Servers, "No" Strip, and "Local" Account. Both tables include "Add Entry" and "Search" buttons. A "Back to Help" button is located at the bottom of the interface.

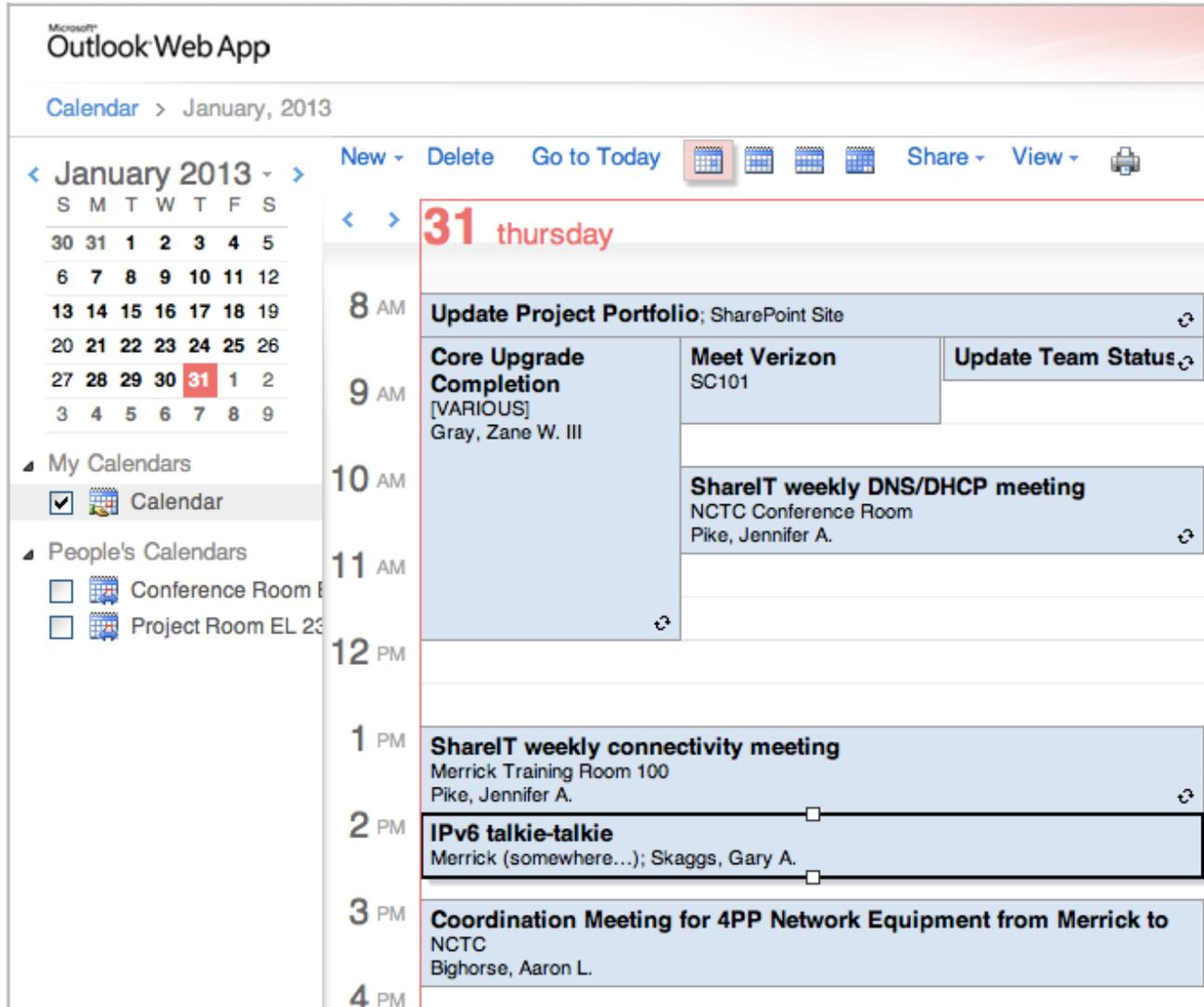
Network Device Group	AAA Clients	AAA Servers	Remote Agents
NWC-NOC	69	0	0
Physics - Nielson	1	0	0
(Not Assigned)	243	2	0

Character String	AAA Servers	Strip	Account
(Default)	acs-primary	No	Local

So, What is it Like to be Me?



A Day in My Life...



Microsoft® Outlook Web App

Calendar > January, 2013

< January 2013 >

S	M	T	W	T	F	S
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

My Calendars

- Calendar

People's Calendars

- Conference Room E
- Project Room EL 23

31 thursday

8 AM Update Project Portfolio; SharePoint Site

9 AM Core Upgrade Completion [VARIOUS] Gray, Zane W. III

9 AM Meet Verizon SC101

9 AM Update Team Status

10 AM ShareIT weekly DNS/DHCP meeting NCTC Conference Room Pike, Jennifer A.

11 AM

12 PM

1 PM ShareIT weekly connectivity meeting Merrick Training Room 100 Pike, Jennifer A.

2 PM IPv6 talkie-talkie Merrick (somewhere...); Skaggs, Gary A.

3 PM Coordination Meeting for 4PP Network Equipment from Merrick to NCTC Bighorse, Aaron L.

4 PM

A Day in My Life...

- Prioritize!
 - Know what is important
 - Don't let the "immediate" overshadow the "important"

- Delegate!
 - Know when to ask for help
 - Build a circle of trust
 - Give credit where it is due

- Get to know your customer
 - Get out from behind the desk
 - **Don't be afraid** to drop in on someone
 - Follow up on issues
- **Overcome fears**
 - Step out of the “**comfort zone**”
 - Take charge when things are going wrong
 - Be accountable (**it's OK to be wrong**)

A Day in My Life...

- Be the trusted advisor
 - Subject matter expert in your field
 - Know both the “trees” as well as the “forest”



A Day in My Life...



- Have fun!
 - Breaks can get you out of a rut (not too frequent...)
 - Make your office the place you enjoy being at.
 - Be that person everyone wants to be around
 - **Lead by example!**

How Do I Get This Job?!



- What I look for in a resume... (the basics)
 - College diploma in a relevant field
 - Experience
 - Certifications
 - I never look at salary (that's up to HR)
- What I look for in a resume... (under the hood)
 - Someone who doesn't change jobs every 1 to 2 years (probably won't last long)
 - Someone who understands the "lingo"
 - Someone who knows how to keep it "brief" but "relevant"

- A Brief Note About Resumes...
 - Keep it brief!
 - No more than 2 pages (3 at most).
 - You don't need to write a novel, because we won't read it.
 - Keep it relevant!
 - Tailor your resume to match the job you are targeting.
 - Leave out extraneous details. These will come out in the interview process.
 - Sell yourself.... Yourself!
 - Don't let a recruiter/headhunter sell you.

- Can you do it?
- Will you love it?
- Will we like you?



George Bradt, Contributor

I highlight things leaders do well as examples for others to follow

[+ Follow on Forbes](#)

LEADERSHIP | 4/27/2011 @ 11:45AM | 559,093 views

Top Executive Recruiters Agree There Are Only Three True Job Interview Questions

 66 comments, 66 called-out

[+ Comment now](#)

The only three true job interview questions are:

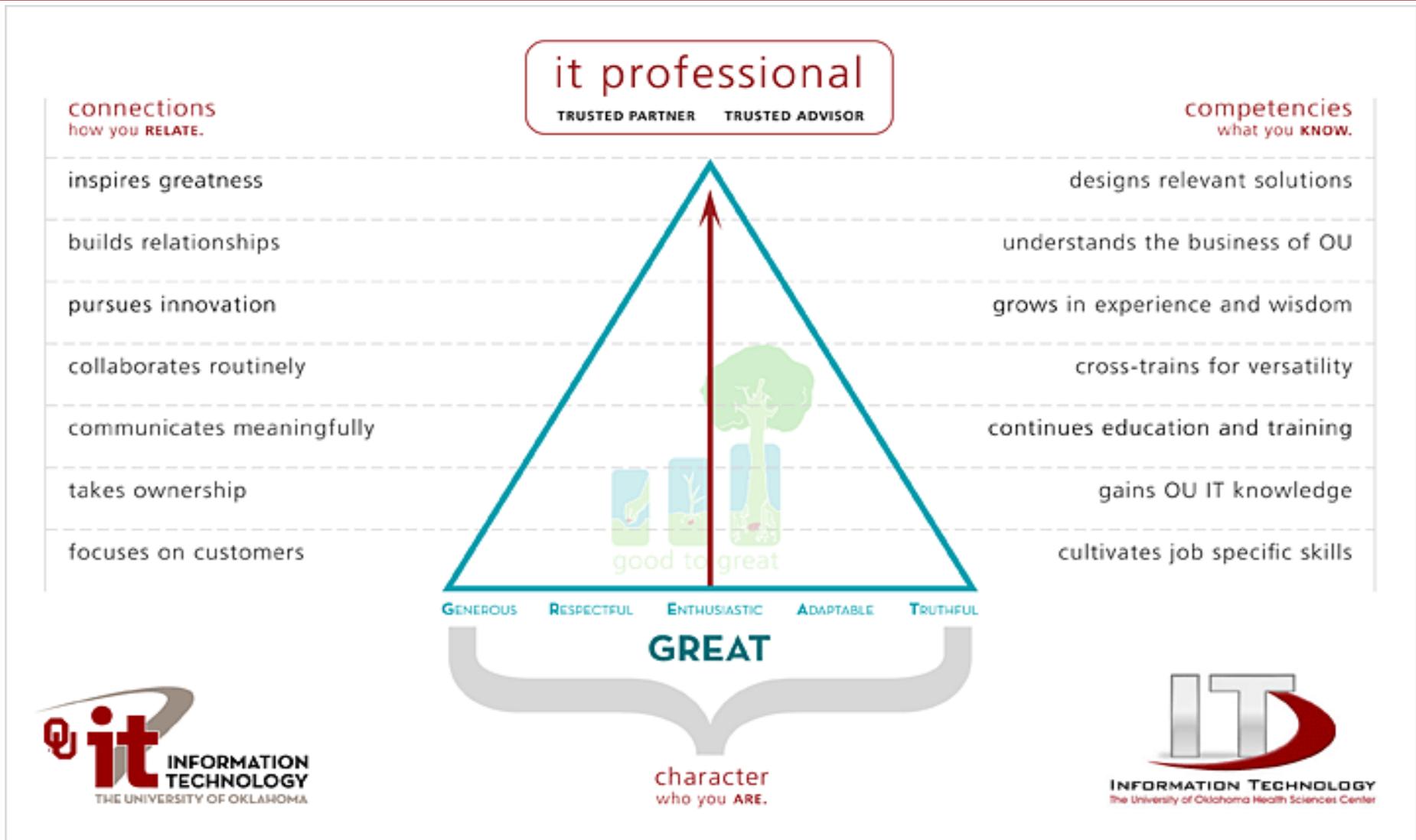
1. Can you do the job?
2. Will you love the job?
3. Can we tolerate working with you?

That's it. Those three. Think back, every question you've ever posed to others or had asked of you in a job interview is a subset of a deeper in-depth follow-up to one of these three key questions. Each question potentially may be asked using different words, but every question, however it is phrased, is just a variation on one of these topics: Strengths, Motivation, and Fit.

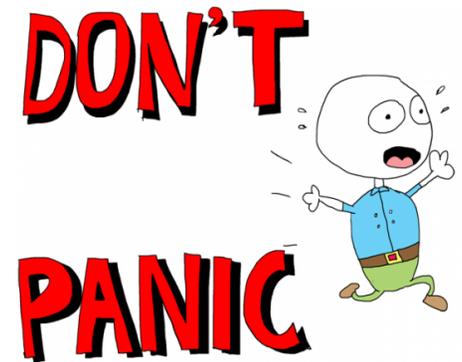


Image by World Economic Forum via Flickr

The Interview...



- What you should do before then...
 - College diploma in a relevant field... this is worth up to 5 years of relevant experience!
 - Experience... internships during college can be applied toward this (kill two birds at the same time).
 - Certifications... start small, and work your way up. Do this during college, or even during high school.
 - Build relationships... sometimes, it isn't WHAT you know, it's WHO you know.



- What you should do... (cont.)
 - Prayer never hurts!
 - Be positive.
 - Have a back-up plan.
 - Have someone else critique your resume.
 - Pass the interview.
 - Be honest during the interview.
 - Practice the interview
 - Thank the interviewer both in person, and later in writing.



Now, about that job...

- What to look for...
 - Money isn't everything. There are sometimes trade-offs for higher salaries:
 - More hours
 - More travel
 - Fewer benefits
 - Reputation. Find a place that everyone is talking about. Ask the people that work there if it is worth it!
 - Family friendly environment. Flexible work hours can be important.



Now, about that job...

- What to look for... (cont.)
 - Look at the “whole package”
 - Dress code?
 - Distance to work?
 - Free parking?
 - Starbucks (or pub) nearby?
 - Shared office space?
 - Time-off policy?
 - Condition of office?
 - Training and learning opportunities!

Now, about that job...

- What to look for... (cont.)
 - Interview the interviewer.
 - Don't be scared. This is a two-way partnership.
 - Ask for a guided tour.
 - Ask to meet your "team".
 - Ask the interviewer how they like the job.
 - This is a long-term commitment!
 - Trust your instincts! If your gut says "no", then turn down the job.
 - Keep that back out plan in place until the probationary period is over.

Congratulations! But now...



Suggestions for success...

- Never compromise your morals.
- Be honest... it's hard to remember all of the lies you've told, and who you told them to.
- Be there for other people... and they will be there for you.
- Be positive! It's contagious.

Congratulations! But now...



- Suggestions for success... (cont.)
 - Don't take things personally... in the grand scheme of things, it's just a job!
 - Rule your destiny.
 - Step outside of your comfort zone. (ref. Office Space, the movie)
 - Nothing in your job is worth getting angry over.
 - Your customer is why you are where you are. Be there for them.

- Technical Stuff... (cont.)
 - Document everything! Trust me, it will save you time in the long run.



Be relevant...

- Technical Stuff... (cont.)
 - Ask for the cool toys!



<http://www.oscer.ou.edu/ostemmp.php>

Be relevant...

- Technical Stuff... (cont.)
 - You will never have enough time or money... always have a backup plan.



Be relevant...

- Technical Stuff... (cont.)
 - Technology changes fast! Try to keep pace, and don't wait for "futures"...



If you got 'em, ask 'em!

Q&A

Evaluation Time!



Please take a moment to fill out the evaluations...
or NOT! The evaluations are completely optional!

No personal or personally identifiable data is collected.

Data is used by the grant providers to gauge success.

The End (about time too...)



**THANK
YOU**