Connecting Active Minds

AN INTRODUCTION TO ENTERPRISE INFRASTRUCTURE SERVICES
Today’s Topics

• Who We Are and Why We’re Here
• How We Serve The Western Community
• Strengths, Challenges, and Closing Conversation
People and Purpose
ENTERPRISE INFRASTRUCTURE SERVICES
Statement of Purpose

Our purpose is to serve the mission of Western Washington University by partnering across campus to provide innovative, effective, and sustainable enterprise IT solutions.
The “Why” of our Work

OUR VALUES

• Service to our students and those who support them
• Learning and development for our team
• Good stewardship of Western resources
• Innovation, Efficacy, and Sustainability

OUR ASPIRATIONS

• We aspire to be Western’s Technology Partner of Choice.
• Within our organization, we aspire to model an ethic of leadership that is shared, strengths based, and service oriented.
- Records and Billing
- Service Orders and Incidents
- M-A-C coordination and logistics
- User needs assessment and analysis of telephony services
- PBX programming and feature assignment
- Skype user assignment and administration
- Other telephony systems administration
- Front-line customer support for telephony services
- General office administration
- Campus Operator services

**System Engineering Team**
- Identity and Directory Services
- Cloud Integration and Hybridization
- Storage and Virtualization
- Messaging and Collaboration
- Automation and Developer Operations
- Unix/Linux System Engineering and Administration
- Microsoft System Engineering and Administration
- Tier 3 System Support Issues
- Tier 4/Outside Support Escalation and Facilitation

**Network Services Team**
- Enterprise Network Architecture – Academic, Operational, and Residential Networks
- Routing and Switching
- Firewall, VPN, and Network Security
- Network Authentication, Authorization, and Access
- Traffic Monitoring and Optimization
- Network Automation Systems
- ISP, WAN, and Remote-Site Connectivity
- Tier 3 Network Support Issues
- Tier 4/Outside Support Escalation and Facilitation

**Network Infrastructure Team**
- Inside/Outside Fiber Optic Cable Plant
- Inside/Outside Copper Communications Cable Plant
- Division 27 Specifications and Construction Drawings Review
- Data and Voice M-A-C
- Network Cabling/Equipment Installation, Inventory and Documentation
- MDF/IDF/Datacenter Infrastructure – Power, Cooling, Lighting, Racks, Cabling, Termination, and Equipment
- 802.11 RF Planning, Analysis, and Optimization
- CATV Equipment, Cabling, and Services
Only 4 of our 20 EIS employees have worked at WWU fewer than 7 years.

The median tenure of an EIS employee is 18 years!
Where Are Our Strengths?

• Highly concentrated in Strategic and Relationship Building

• Biggest gap is in Influencing

• Reflects a team that is analytical, committed to learning, and focused on serving the needs of others

<table>
<thead>
<tr>
<th>Domain</th>
<th>% staff with at least 1</th>
<th>% of total team strengths</th>
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<tbody>
<tr>
<td>Executing</td>
<td>78%</td>
<td>26%</td>
</tr>
<tr>
<td>Influencing</td>
<td>37%</td>
<td>9%</td>
</tr>
<tr>
<td>Relationships</td>
<td>89%</td>
<td>31%</td>
</tr>
<tr>
<td>Strategic</td>
<td>79%</td>
<td>34%</td>
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System Engineering
System Engineering Team

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Enterprise Systems

- Productivity Tools
- Messaging and Communication
- Authentication
- Network File Storage
Servers for Enterprise Applications

- Business and Financial Systems
- Student Services
- Enterprise Resource Planning
- Web Servers
Infrastructure Systems

- Virtualization and Cloud Services
- Automation and Configuration Management
- Server Operating Systems
- Directory Services
By The Numbers

• Ten years ago, we managed ~100 servers
• Today, we manage 378 servers, with one less FTE on the team
• Our average rate of production this year is 8 new servers per month
• We provide identity integration with 224 cloud-based applications
• We provision, license, and maintain ~28,000 user accounts
Office 365 – The Last 30 Days

Office activations
19.0K

Yammer activity
56 8.2%↓

Microsoft Teams activity
5.7K 488.2%↑

Activated users - 11465 of 27483
Active users - 4 of 1215
Active users - 357 of 19753
Office 365 – The Last 30 Days

Email activity: 5.8M (54.5%↑)
- Sent
- Received
- Read

OneDrive files: 3.8M (4.3%↑)
- Storage used:
  - 1/22/2019
  - 2/20/2019

SharePoint files: 589.7K (3.7%↑)
- Viewed or edited
- Files synced
- Shared internally
- Shared externally

Skype for Business activity: 117 (16.4%↓)
- Peer-to-peer
- Organized conferences
- Participated-in conferences

Active users:
- Email: 18743 of 26886
- OneDrive: 6559 of 27950
- SharePoint: 5814 of 27950
- Skype: 1 of 27900
Telecom Operations
Telecom Operations Team

- Records and Billing
- Service Orders and Incidents
- M-A-C coordination and logistics
- User needs assessment and analysis of telephony services
- PBX programming and feature assignment
- Skype user assignment and administration
- Other telephony systems administration
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- General office administration
- Campus Operator services
Telecom Operations

• Process all service orders and trouble tickets for voice and data services
• Assist departments in planning moves and changes of data and voice services
• Administer voice systems, including PBX, Skype, Voicemail, and eFax
• Manage phone inventory
• Maintain cable path and service records for all voice and data connections
• Update 911 location records for campus
• Manage internal and external billing for data and voice services
• Live campus operator during business hours
By The Numbers

• Write 1,000 service orders/trouble tickets per year
• Maintain records for 4,500 unique phone numbers
• Maintain records for over 17,000 active data connections
• Re-bill $600,000 per year in interdepartmental charges
Network Infrastructure
Bob Ibach
Physical Network Engineer (ITS4)

Vacant
Network Technician

Rich Dustin
Network Technician

Elliot Hubbard
Student
Communications Technician

Ron Sanders
CATV Consulting Engineer (Media Engineer B)

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Network Infrastructure

• Physical installation and testing of copper and fiber optic cabling
• Physical installation of networking equipment – routers, switches, wireless access points, and other devices
• Installation and maintenance of equipment in data centers and telecom closets – racks, termination fields, patch panels,
• Troubleshooting voice and data service issues in the field
• Maintenance of the Cable TV system
• Design, review, procurement, and implementation of telecom infrastructure for all new buildings and remodels
By The Numbers

• 28,000 wall jacks
• 26,000 Switch Ports
• Over 200 Routers and Switches
• Over 1300 Wireless Access Points
• Over $10 million in total networking equipment
• Two Data Centers and Over 100 Telecom Closets
Network Services
Network Services Team

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Network Services

• Academic, Residential, and Other Networks
• Wired and Wireless Access
• Firewalls and Intrusion Detection/Protection Systems
• Virtual Private Networks (VPNs) and Remote Sites
• Campus internet services
By The Numbers

• At peak times each day, there are 13,000 wireless devices and 8,000 wired devices connected to our network

• Our campus consumes an average of 4.5 Gigabits per second of bandwidth across our three internet connections – that’s the equivalent of streaming over 1100 high-definition movies simultaneously.

• The campus does not have one network – it has 743 distinct networks that have to be configured, managed, and interconnected
UW Medicine mistakenly exposed information on nearly 1 million patients

UW Medicine is in the process of sending letters to approximately 572,000 patients in all 50 states whose data was exposed. Shown here is UW Medical Center. (Mike Siegel / The Seattle Times, 2016)

The files contain patients' names, medical record numbers, a description of the information shared and a description of who it was shared with, UW Medicine said in a news release.
Chris Miller
Director of EIS

Ken Pearce
IT Security Manager

Temporary Supervisor

**Information Security Office**

- Assist business owners with information security assessments, risk mitigation, and compliance
- Respond to information security incidents
- Assist in the development of information security policies, procedures, standards, and guidelines
- Lead security awareness and training efforts
Information Security Office

• Provide in-person information security training to departments

• Respond to information security incidents (phishing, hacking, malware, etc.)

• Assist Internal Audit, UPD, HR, Public Records Office, and others with requests for information

• Assist departments with assessing their technologies and practices for compliance – FERPA, HIPAA, PCI-DSS, CJIS
By The Numbers

• We successfully block over 3,000,000 attempts to breach our network from the internet every hour.

• We inspect and act on up to 14,000 suspected malware events on our network every hour.

• From 2014-2018, we detected and secured 448 compromised user accounts and 511 distinct “phishing events”

• Our mail systems scan ~60,000 attachments in a typical 10-day period; about 1 out of every 700 contains malware and is blocked

• Western users send and receive ~5,000 emails per month that contain sensitive information – SSN, credit card or bank account numbers, passport numbers, etc.
Victory comes from finding opportunities in problems.

Sun Tzu
Challenges

• The Information Security Office is understaffed and under-resourced to meet the current threats and growing challenges facing Western.

• Demand for Enterprise IT Systems has significantly outpaced our growth in staff and funding. We have compensated by using innovative technologies and methods to scale our productivity, but we are reaching the limits of what innovation can compensate for.

• We have no dedicated funds for lifecycle replacement of critical infrastructure (data networks, phone systems, etc.). Instead of being strategic, we are forced to be reactive and to wait for systems to fail before we can replace them.

• IT costs are rising, as more vendors move away from traditional perpetual licensing models and toward subscription-based services.
Opportunities

• New leadership at all levels will bring new attention and new thinking to Western’s technology needs and resource constraints

• The formation of a dedicated Project Management Office, and the lessons learned from the Banner 9 Project, will help bring a more systematized, process-driven approach to our work

• The IT Advisory Committee will help us focus our efforts and limited resources on those initiatives that are of the greatest value to Western as a whole
Closing Thought:

What role can we play in helping you achieve your vision for the Western of Tomorrow?

Thank you for your time and attention today.