IT@Cornell is...

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IT@Cornell is becoming...
IT@Cornell is ... a complexity challenge

- Common Infrastructure

Cost vs. Complexity
- Managed desktop
- Software consolidation
- Virtualization
- Cloud services
IT@Cornell is ... a community

- 2008: 875 IT staff
- 2012: 720 IT staff

54% Units
46% Center
40% Center
Central IT is ... “rightsized”
IT@Cornell is ... multiple organizations

55% of IT staff work in colleges, schools, units
Redundant Network
Internet Connections
Routers
Switches
Load Balancers
Firewalls

[Graph showing number of virtual machines and estimated savings over time]
IT@Cornell is ... well connected
IT@Cornell is ... well connected
IT@Cornell is ... well connected

- 1,500 web sites, 9.5M hits/day
- 3,800 wi-fi access points, 200 buildings
- 28,000 active network ports
- 39,000 people using 103,000 devices

Cornell Network Flow

External Networks
Campus Core Network
All Links 10GB
Campus Distribution Network
Campus Buildings

Incorporating the information from the map and the text:

Rochester
- Internet2 - 1GB

Syracuse
- Internet2 - 1GB
- Cogent Internet - 10GB

Ithaca
- FLTG Internet - 10GB

NYC
- National Lambda Rail - 10GB
- Well Medical College - 1GB
- Cornell NYTech - 10GB
IT@Cornell is ... connected to the world
IT@Cornell is ... more than 1,100 software applications
IT@Cornell is ... structured development of new IT services
IT@Cornell is … a catalogue of services

<table>
<thead>
<tr>
<th>Central IT Service Categories</th>
<th>Services (&amp; Products)</th>
<th>Service Owner</th>
<th>Fees Apply?</th>
<th>COE/CIS</th>
<th>Central Library &amp; Mann</th>
<th>ILR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network &amp; Phone</td>
<td>Network Services (DNS/DHCP, NUBB, WiFi, VPN, Etc)</td>
<td>Laurie Collinsworth</td>
<td>Yes</td>
<td>Y</td>
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<td>3</td>
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<tr>
<td></td>
<td>Telephone Services (Analog Voice, Call Management, Digital Voice, Conference Calling, Calling Card, EC500, IP Voice, Audix, Etc)</td>
<td>Tom Ball</td>
<td>Yes</td>
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<tr>
<td>Infrastructure Servers and Storage</td>
<td>Managed Servers (Linux, Solaris, Windows)</td>
<td>Laurie Collinsworth</td>
<td>Yes</td>
<td>Y</td>
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<tr>
<td></td>
<td>Storage Services (TSM, Shared File Services)</td>
<td>Paul Zarnowski</td>
<td>Yes</td>
<td>Y</td>
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<td></td>
<td>Data Center (HVAC Network)</td>
<td>Brian Messenger</td>
<td>Yes</td>
<td>Y</td>
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<tr>
<td>E-mail &amp; Calendaring</td>
<td>E-mail (Office 365, Exchange, C-mail, Bulk Mail, COEA, Blackberry)</td>
<td>Chuck Boeheim</td>
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<td>Y</td>
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<tr>
<td></td>
<td>Calendaring (Exchange)</td>
<td>Chuck Boeheim</td>
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<td>Y</td>
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<tr>
<td>Audio &amp; Video</td>
<td>Video Streaming, Hosting, Digital Signage</td>
<td>Andy Page, Clare van den Blink</td>
<td>Yes</td>
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<td></td>
<td>Web &amp; Video Conferencing</td>
<td>Andy Page</td>
<td>Yes</td>
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<td></td>
<td>Classroom technology Consulting</td>
<td>Andy Page</td>
<td>Yes</td>
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<tr>
<td></td>
<td>Event Support &amp; Media Production</td>
<td>Andy Page, Clare van den Blink</td>
<td>Yes</td>
<td>Y</td>
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<tr>
<td>Labs &amp; Instructional Resources</td>
<td>Classroom Polling (iClicker)</td>
<td>Clare van den Blink</td>
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<td></td>
<td>Course Mgmt (Blackboard)</td>
<td>Clare van den Blink</td>
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<td></td>
<td>E-Portfolio (Mahara)</td>
<td>Clare van den Blink</td>
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<td></td>
<td>Grad Thesis Manager</td>
<td>Shannon Osburn</td>
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<td>Lecture Capture (Panopto)</td>
<td>Clare van den Blink</td>
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<td>Y</td>
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<td>Plagiarism Detecon (Turnin)</td>
<td>Clare van den Blink</td>
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<td>Y</td>
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<tr>
<td></td>
<td>EssayScoring &amp; Plagiarism</td>
<td>Clare van den Blink</td>
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</tbody>
</table>
IT@Cornell is ... cloud services

24,000 faculty/staff on Office 365
21,000 students use Google mail
83,000 alumni forward to cornell.edu

2M incoming messages daily, 70% blocked
1.5M outgoing messages sent daily
IT@Cornell is...cloud services

Office productivity
Student and Faculty Portfolios
High Performance Computing
Staff Skill Building
Survey Tools
Plagiarism Detection
Video Conferencing
Multimedia Storage and Delivery
Human Resource Management
Customer Relationship
Knowledge Management
Website Hosting & Content

Exchange, Word, Excel, Powerpoint, Sharepoint
Digication, Mahara
RedCloud, Amazon Web Services, Azure
SkillSoft
Qualtrix
Turnitin
WebEx
Kaltura
WorkDay
SalesForce, Microsoft CRM
RightAnswers, IntelliResponse
Acquia/Drupal, Edublogs, Bluehost
IT@Cornell is ... Red Cloud
IT@Cornell is ... Cyber Security

- **Threat Assessment**
  - External expertise
  - Internal practices

- **Breach Prevention**
  - Policies
  - Practices
  - Technologies
  - Awareness

- **Breach Management**
  - Incident assessment
  - Directed change
  - ITSO learning
  - Reassess threats

- **Remediation and Improvement**
  - Monitoring
  - Best practices
  - Decision-making

- **Decision-making**
  - Reassess threats
IT@Cornell is ... increasingly focused on learning

95% of all Ithaca-based students use BlackBoard, learning management system
IT@Cornell is ... increasingly focused on learning

- Lecture capture
- eTextbooks
- Lab Notebook software
- Classroom technologies
- Online learning
Technology
Instructional Data
Consumerization
Cloud
The Planning Process

- Multiple advisory committees
- Faculty Advisory Board (FABIT)
- Interviews with researchers
- Student focus groups
- Question of the week
- IT planning conference
- Draft plan complete February 2013
Today, IT Expenditures Look Like This

90% Utilities

10% Differentiators

- Academic technologies
- Analytics
- Research computing
- Mobility

- Messaging/calendaring
- Most administrative systems
- Voice and most data networking
- Desktop support
We Aspire to a More Equal Balance

50% Differentiators
- Academic technologies
- Usability
- Analytics
- Research support
- Mobility

50% Utilities
- Messaging/calendaring
- Most administrative systems
- Voice and most data networking
- Desktop support
Initial Priorities

1. Build capacity for online learning
2. Enhance student experience
3. Transform IT skills
4. Extend utility services to research community
5. Improve usability of systems and services
6. Increase access to management information
Thanks for Listening

Questions…?

Presented to Cornell Trustees

Ted Dodds
CIO and VP
Cornell University
Thursday, March 28, 2013
IT@Cornell is ... Cyber Security

Threat Assessment
External expertise
Internal practices

Breach Prevention
Policies
Practices
Technologies
Awareness

Remediation and Improvement
Incident assessment
Directed change
ITSO learning
Reassess threats

Breach Management
Monitoring
Best practices
Decision-making
Threat Assessment

• External Expertise
  – National
  – Regional
  – Sector independent

• Internal Practices
  – Active scanning
  – Targeted penetration testing
Breach Prevention

- University Policy
  - http://Policy.cornell.edu
- Practices
  - Security assessments
  - Security training
- Technologies
  - Encryption
  - Unit firewalls
  - Anti-virus
- Awareness
Breach Management

- Active monitoring
- Contemporary practices = rapid response
- Decision making
  - Role clarity
  - Decision rights
  - Governance
Remediation & Improvement

- Assess unit practices to standard
- Direct change in practices that caused incident
- Identify any ITSO lessons learned
- Reassess threat landscape