

美国大学信息化管理及 Intern2 Net+

肖水根

Georgetown University
Internet2



GEORGETOWN UNIVERSITY



www.internet2.edu

祝贺北京大学计算机中心成立五十周年

On behalf of the US Research and Education Networking community and Internet2 I'd like to congratulate you on celebrating the 50th anniversary of Peking University's Computer Center. This is truly a great achievement.



H David Lambert
President and CEO
Internet2

祝贺北京大学计算机中心成立五十周年

On behalf of Duke University, please accept our heartfelt congratulations on the celebration of Peking University's 50th anniversary of your Computer Center. As one of China's foremost universities, this celebration extends far beyond Peking's borders, and encompasses your role as a leader for higher education in China and the world.



Tracy Futhey
Vice President and
CIO
Duke University

祝贺北京大学计算 中心成立五十周年

On behalf of New York University, I wish to congratulate you and your colleagues for incredible work that the Center has provided to the community as key pioneer NYU looks forward to future collaboration with the Center as we continue to work together in the many areas of higher education



Tom Delaney
Vice President &
CTO
New York
University

美国高校信息化建设经验分享

- IT Governance
- IT Financing (Budget/spending)
- IT Staffing
- IT Functions
- IT Support Services
- Research Support
- Data Center/Communication/Information Systems
- Information Security

IT Governance

- IT Organizations
- Leadership, Planning
- CIO and CIO Reporting Line
- IT Advisory

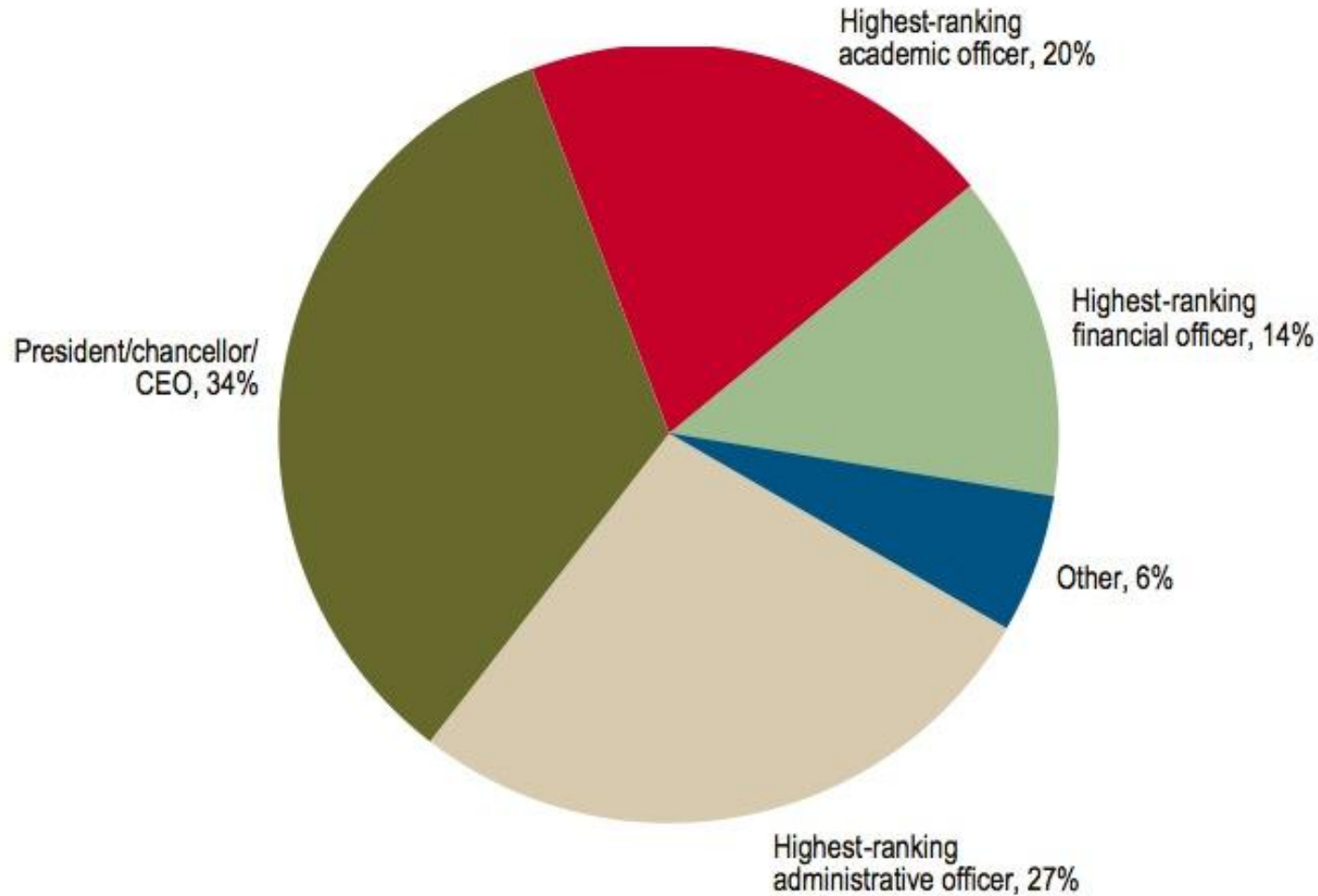
IT Organizations

- Central IT Organization
- Other IT Related Units
 - Technology—Enhanced Teaching
 - Classroom Technology
 - Multimedia
 - Research Computing
 - High Performance Computing
 - Computer Labs
 - Libraries
 - Mailroom

IT Leadership and planning

- CIO
- CIO Reporting Line
 - President
 - Highest ranking Administrative Officer
 - Highest Ranking Academic Officer – Provost
 - Highest Ranking Financial Officer – CFO
- IT Strategic Plan
 - Most incorporated in Institutional Strategic Plan specially in Public schools

CIO Reporting Line



IT Governance

- CIO receives advices from
 - Campus IT Committee appointed by President and/or Board
 - Board IT Committee
 - State Agency
 - School system office
- IT Advisory Committees with Members
 - administrative/academic leaders
 - Faculty representatives
 - Staff
 - Students
- IT Special Advisory Committee
 - Administrative(ERP)/Educational Tech/Research/Infrastructure, etc

Central IT Core Functions

- Campus IT administration
- Data centers
- Voice Network
- Data networks
- Enterprise Infrastructure Services
- Help desk

Central IT Shared Responsibilities

Usually include Non—IT component

- Multimedia
- Web support services
- Research computing
- Instructional technology support
- Classroom Technology
- Information System (ERP)

Central IT Responsibilities

Function	Provided by central IT	Shared with Another Unit	Provided by Another Unit	Provided by System Office	Outsourced
Functions typically owned by central IT					
Network infrastructure and services	96%	2%	0%	1%	1%
Administration of central IT organization	95%	2%	0%	1%	2%
Data center, operations	94%	2%	0%	2%	2%
IT security	88%	7%	0%	4%	1%
Desktop computing, user support, training, computer store	85%	13%	1%	0%	1%
Help desk	85%	10%	1%	0%	4%
Enterprise infrastructure and services; identity management	84%	5%	1%	9%	1%
Telephony	83%	7%	6%	2%	2%
IT policy	76%	19%	0%	4%	1%
Student technology (labs, training, support, etc.)	76%	20%	3%	0%	1%

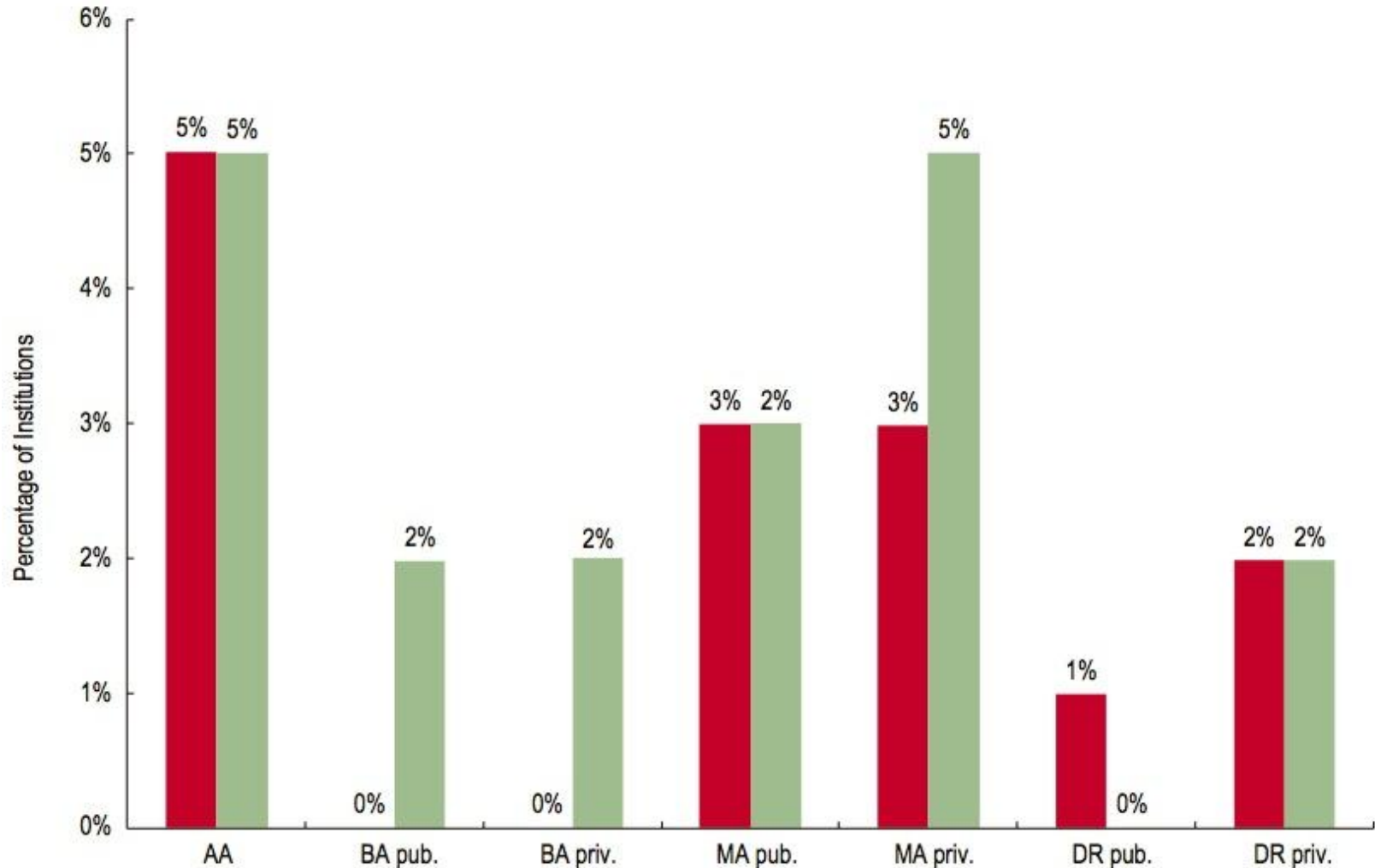
Central IT Shared Responsibilities

Function	Provided by central IT	Shared with Another Unit	Provided by Another Unit	Provided by System Office	Outsourced
Functions often owned by central IT or shared with another unit					
Project management/business process/systems analysis	66%	29%	1%	3%	1%
Classroom and learning space support	65%	26%	8%	0%	1%
Research technology services	51%	35%	11%	2%	0%
Multimedia services	61%	23%	14%	0%	1%
Web support services	44%	39%	15%	0%	2%
Business intelligence/data administration/data warehouse	54%	27%	5%	13%	1%
Faculty instructional technology/CMS/LMS support	42%	38%	18%	1%	1%
Functions that may be owned by central IT, shared, or owned by another unit					
Distance education	23%	39%	35%	1%	1%
Print/copier services	19%	35%	38%	1%	7%

Administrative Computing

Function	Provided by Central IT	Shared with Another Unit	Provided by Another Unit	Provided by System Office	Outsourced
Admin info systems/ERP, student	51%	24%	4%	19%	2%
Admin info systems/ERP, finance	42%	29%	16%	11%	2%
Admin info systems/ERP, HR	37%	29%	19%	10%	4%
Admin info systems/ERP, alumni/advancement/fundraising	46%	23%	5%	22%	4%
Admin info systems/ERP, other (facilities, grants management, etc.)	47%	24%	4%	22%	2%

Service Outsourcing



Services Outsourced

- Print/Copier services (11%)
- Help Desk (3%)
- Student email (44%)
- Staff/faculty email (11%)
- Admin Info Sys/ERP(2%)
 - Alumni
 - HR
 - Financing

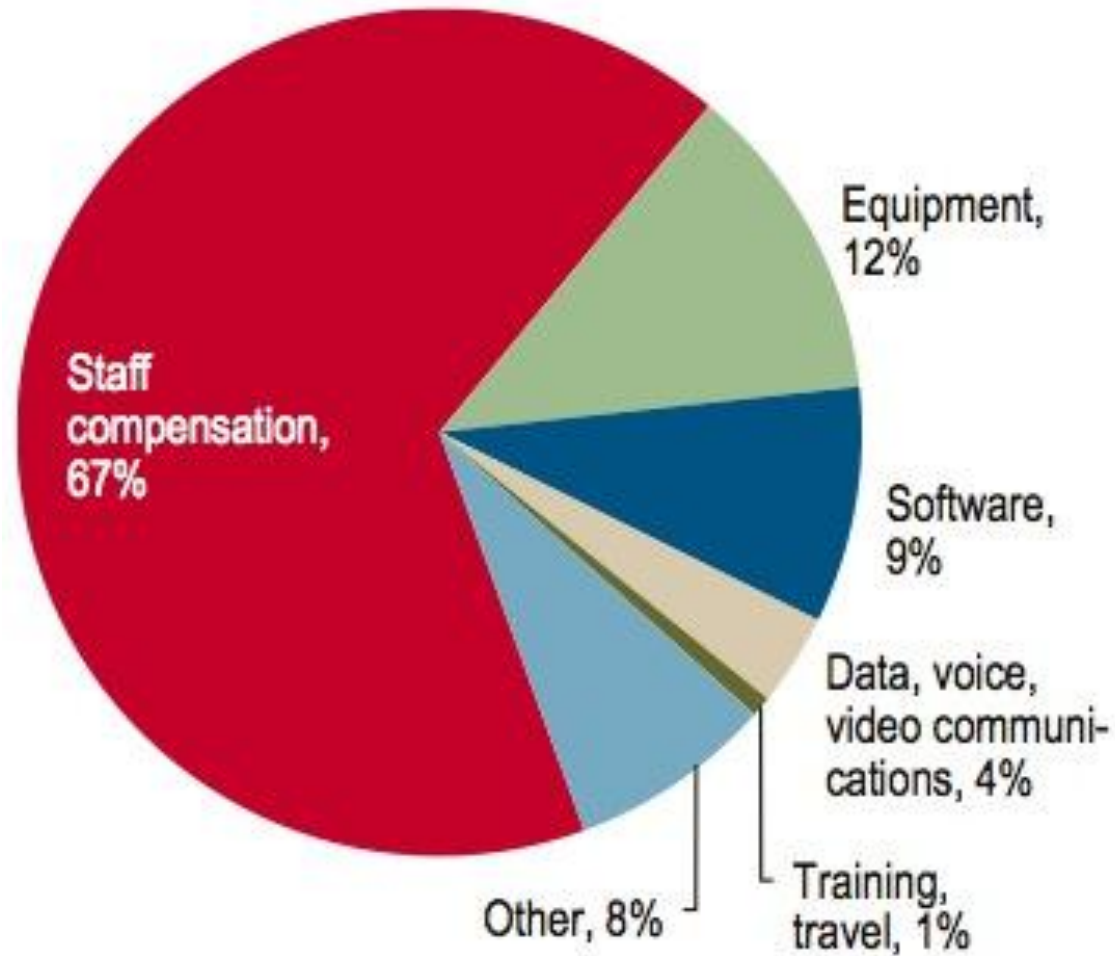
Central IT Financing

- 4% of total Institutional Budget
- \$5,004 per institutional employee (Staff and Faculty)
- \$ 985 per Institutional FTE (Faculty, staff, and student)
- 63% institutions with designed student technology fee
- \$244 Average student technology fee

IT Finance Resource

- Operational Budget
- Capital Investment
- Student Technology Fee
- Chargeback

IT Spending



IT Staffing

Number	Description
54%	CIO reports to President
63%	Central IT staff as vs Institutional IT staff
16%	Student workers
4%	Center IT Staff / Institutional Staff (faculty and staff)
0%	Outsource IT staff
\$877	Spending on training/travel/conference/seminar

IT Support Services

Number	Description
72%	Computer lab in student house
79%	Assistance with Mobile Apps
26%	Offering tablet checkout for faculty and staff
69%	Hardware repair for faculty and staff

IT Support Services

Number	Description
95%	Walk in help desk
91%	Help desk via web form
43%	Help desk via Instant Message
8%	Helpdesk via Text Message
99%	Full support for smartphone
100%	Full support for iPad/other tablet
9%	Full support for e-books

IT Support Services

Number	Description
72%	Computer lab in student house
79%	Assistance with Mobile Apps
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69%	Hardware repair for faculty and staff

Data Center

Number	Description
26%	Using commercial data center services
25%	Joint-Data Center
65%	Occupancy rate based on square footage
63%	Occupancy rate based on cooling capacity
47%	Servers that are virtualized
36%	Institutions that tested data center disaster recovery plans in place

Communication Infrastructure

Number	Description
1.6G	Commodity internet capacity
93%	Using other internet bandwidth Access to State or NREN 1-10G
97%	Wireless access from student housing
49%	Proportion of wireless access points that are 802.11n
60%	IPv6 enabled or to be enabled
55	Hours per week that NOC is staffed

Georgetown University

- One of the world's leading academic and research Institutions.
- Ranked 22nd among U.S. universities.
- Founded in 1789 in Washington, DC.
- Oldest Jesuit and Catholic university in the United States.
- Faculty: 1,291 full-time and 882 part-time.
- Students: 17,357 (7,552 undergraduate and 6,917 graduate).

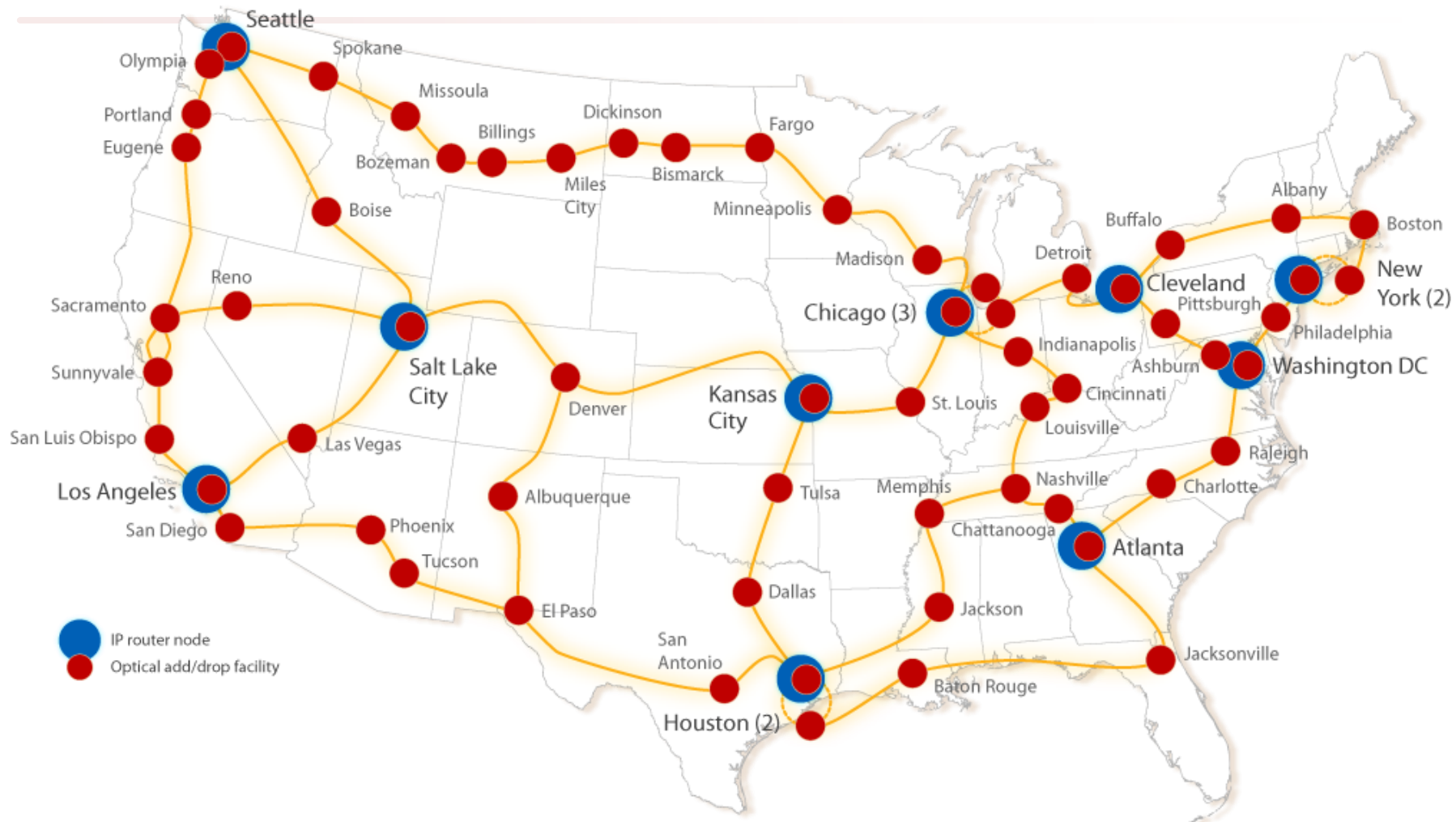


Internet2



- Founded in 1996
- Owned by member universities
- >300 research universities
- >70 federal labs and agencies
- >80 International partners (RENs)
- >100 corporations
- A 100G backbone to support members and k-12 schools, and communities

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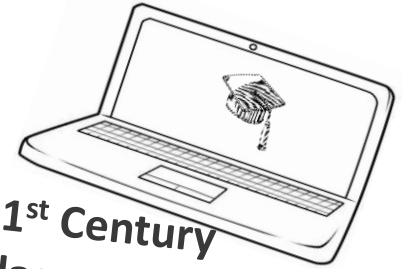
Transformation in Higher Education

The world of higher education is being transformed in dramatic ways due to the convergence of the following forces:

The New
Student



21st Century
Classroom

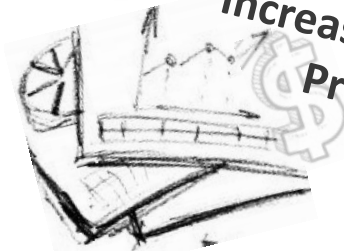


UNIVERSITY

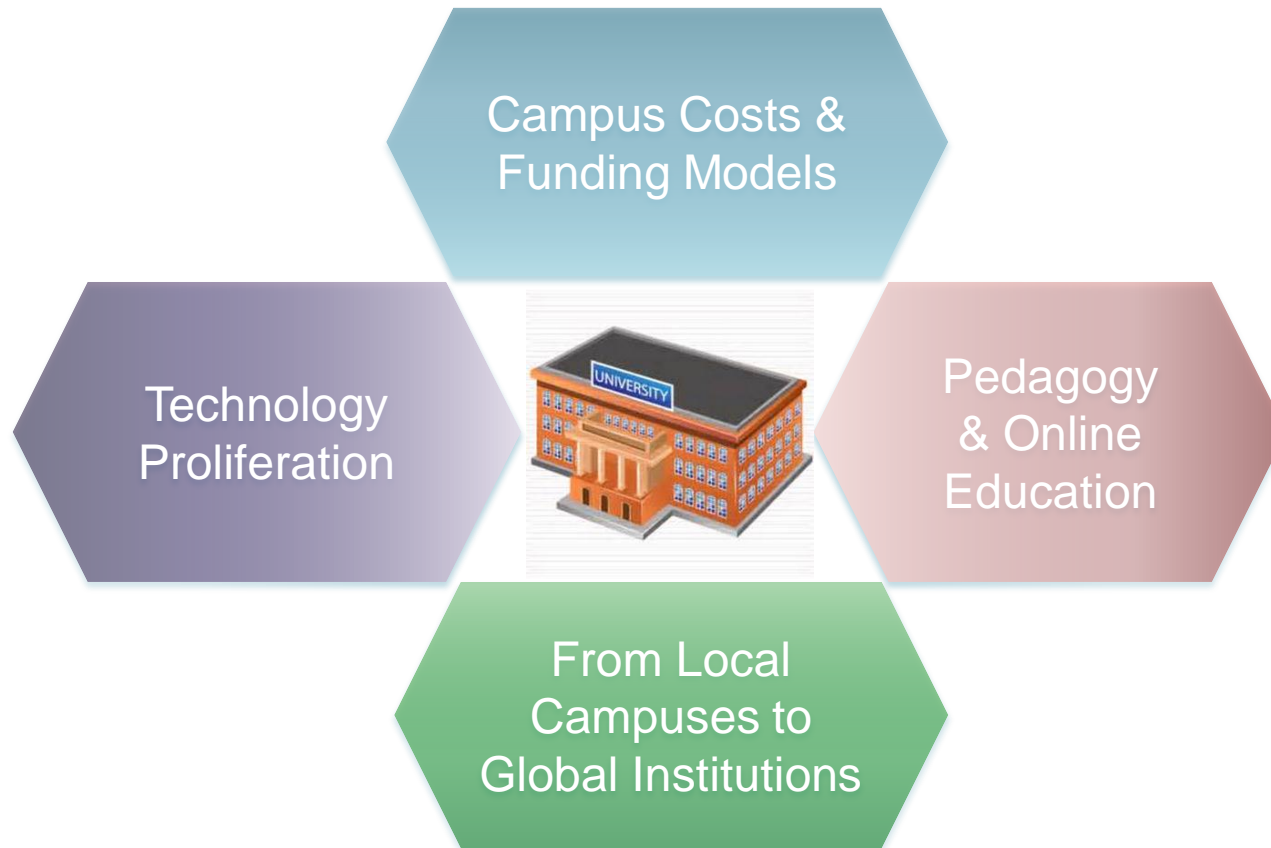
Digital Takeover



Increased Cost
Pressures



Recognize Change – In every direction



*"This is a tsunami...
The potential
upside for this
experiment is so big
that it's hard for me
to imagine any
large research
university that
wouldn't want to be
involved."*

*—Richard DeMillo,
Director, Center for 21st
Century Universities*

Be prepared for online education which WILL impact your campuses. Change from being technology plumbing to being technology partner:

- Compete with a new breed of online providers
- Implement new higher education solutions more quickly, more easily and with lower risk
- Offer courses and services to broader national and international markets

Pedagogy & Online Education



Internet²NET+

What it is not

a buyer's club

a marketing system where providers
sell to higher education
primarily about price

a one-way street

driven by one campus, country,
NREN or provider
delivered over unreliable
networks

What it is

*services tailored for R&E, with
special pricing and business terms
a process where providers help
shoulder the risk as partners*

*primarily about delivering value to
both higher ed and providers*

*a collaboration to increase rewards
and reduce overhead*

*driven by the real needs of research
universities to benefit all*







*delivered over the most advanced
networks around the world*

Internet²NET+

How NET+ Providers are Selected: ALWAYS Sponsored by Internet2 Member Campus

- Can the services scales at least nationally?
- Can it be delivered over global R&E networks?
- Develop a business model that scales globally and serves significant portion of community?
- Will provider work with community to meet unique R&E needs today and into the future?
- Adopts R&E federated identity standards?
- Commits to community's Security, Privacy, Compliance, and Accessibility needs?



	Spring 2012	Aug 2013
 Inquiry	(NA)	2+
 Evaluation	(NA)	7+
 Service Validation	6	12
 Early Adopter	8	8
 General Availability	2	4
 Sunset	(NA)	0

Internet²NET+

cloud service
lineup expands

18 services

34 services



Spring 2012	Aug 2013
2	1

Growing Ecosystem of NET+ Services & Providers

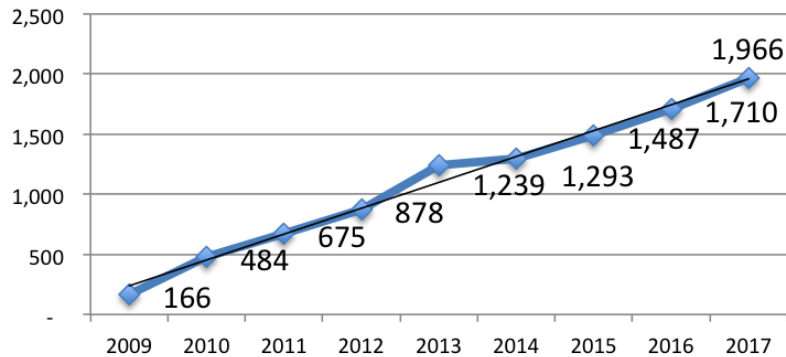


*"We are seeing the...emergence of a meta-university—
a...dynamic, communally constructed framework of open materials and platforms on
which much of higher education worldwide can be constructed or enhanced."*

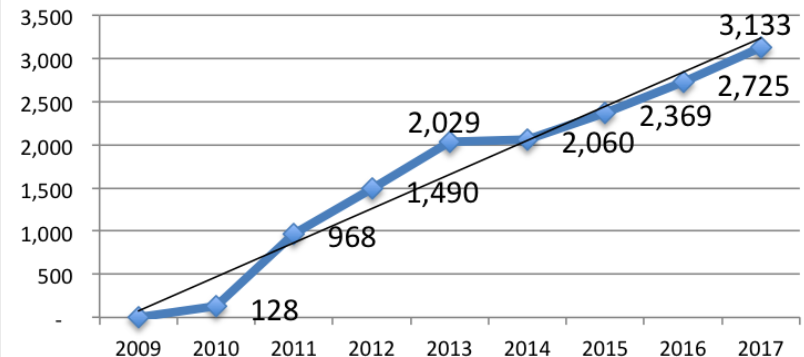
—Charles M. Vest, President Emeritus, MIT

Net+ Services

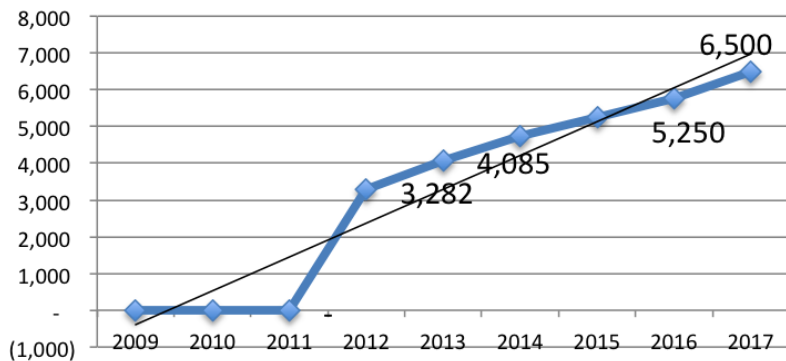
InCommon Participation
(,000)



Certificate Service
(,000)



Box Revenue
before flow-through (,000)



“Program success is based on rapid revenue growth. Here are three examples of services in “general availability.”

Cloud Success takes more than technology



CHANGE MANAGEMENT

COMMUNITY

INTEGRATION

TEMPLATES

POSITION DESCRIPTIONS

SKILLS

BEST PRACTICES

REPOSITORIES

TRAINING: RISK CONTRACTS

DEVELOPMENT: CLOUD ELEMENTS

CULTURAL CHANGE:

Recognize that moving to the Cloud is NOT just buying new technology.

PARTICIPATION: Every member of your campus community will be involved. So *GET* them involved.

CHANGE MANAGEMENT: Planned

COMMUNITY: Coordination

INTEGRATION: Identity & System

TEMPLATES: Per Service

POSITION DESCRIPTION: Shared

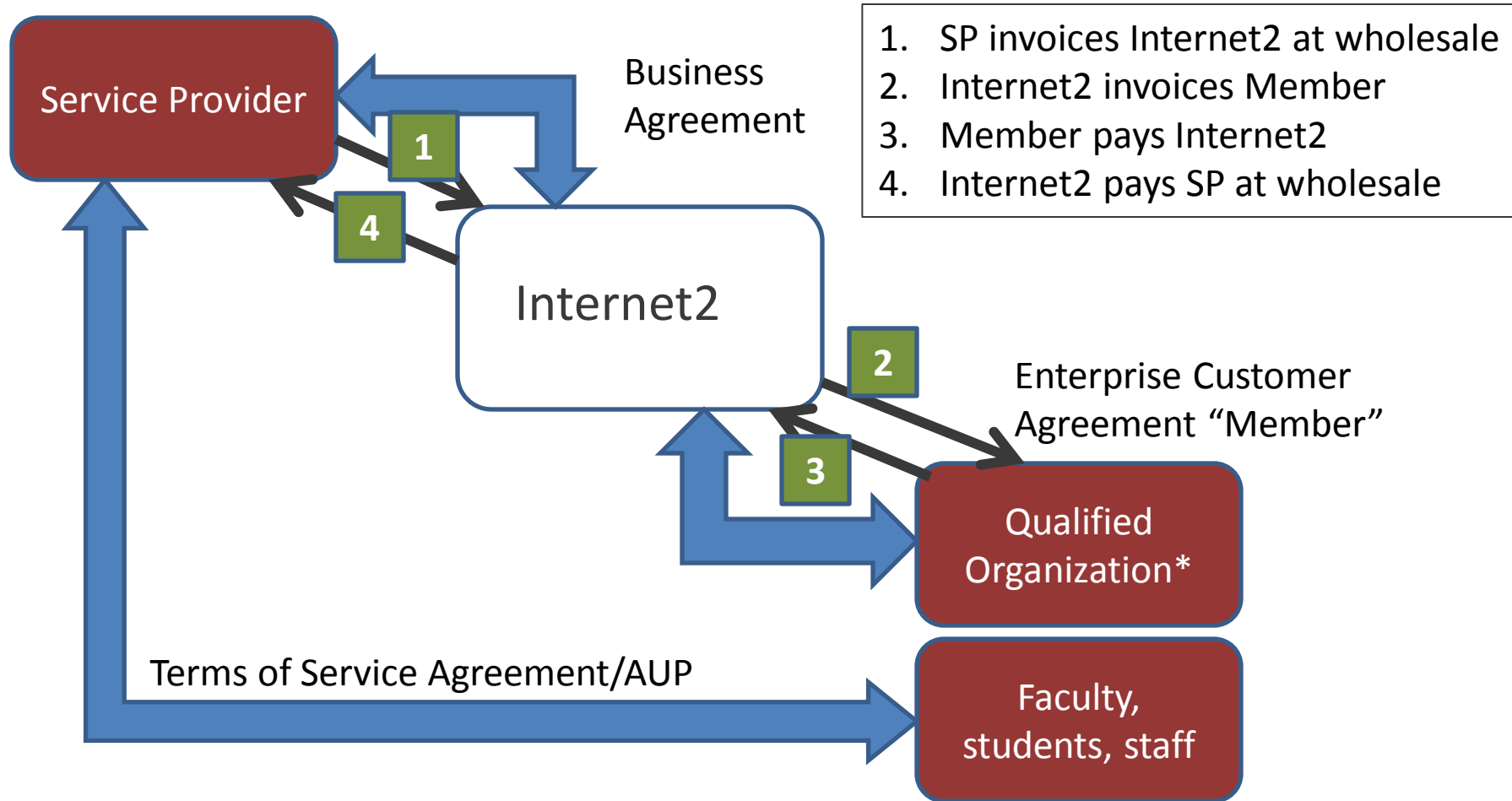
SKILLS: New Jobs and Careers

BEST PRACTICES: Shared

REPOSITORIES: Documentation

TRAINING: Risk Contracts

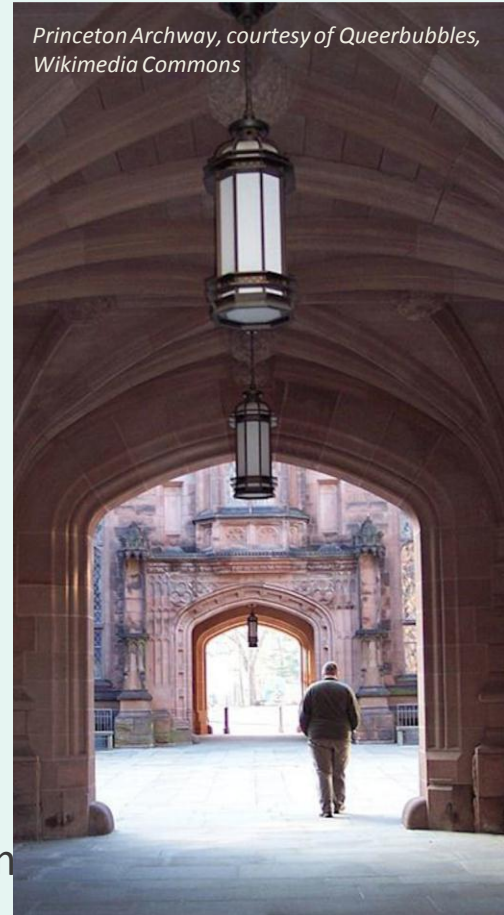
Example: NET+ Contractual Relationships – Type B1



* Qualified Organization agreed upon with each SP

How can campuses prepare for the cloud?

- 1 Create campus strategy for internal and external cloud services
- 2 Shift from culture of central control to one of sharing, reuse, and value-added differentiation
- 3 Evaluate Internet2 NET+ portfolio, examine *your* portfolios, consider which projects could benefit from NET+ scale
- 4 Develop campus identity solution built on open standards
- 5 Support service competition choices—*but constrained, not unlimited choices*
- 6 Start implementing cloud-ready language *now* in all contracts
- 7 Create “cloud first” culture by partnering with legal and procurement teams, restructuring internal processes and policies with the cloud in mind



Thank You!

sx3@georgetown.edu

sxiao@internet2.edu



GEORGETOWN UNIVERSITY