

**Don Smith's Notes from Information Technology Briefing
to University Senate Executive Committee
January 2011**

Trends and Costs

Over the last 5 years Rutgers IT has grown by about 10%. OIT has shrunk by 10% and Distributed IT has grown by 20%. IT staff had been 50/50 and are now 60/40 distributed. Interoperability is critical and we need to do it much better. The amount per person per year that Rutgers spends on IT is significantly less than what is spent by our peers

Consistent, Correct, Timely Information

Every piece of information should have a single authoritative source. Information can be distributed but without an authoritative source we'll continue to have inconsistent information and little hope of improving correctness. Local copies of data can be kept but they should have expiration dates.

Exchange of information should be real time, as opposed to overnight feeds. Information should be exchanged using a common data representation such as xml and make use of web service protocols where possible.

Clustering of Services

"Equivalent" services, both hardware and software, should be combined and coordinated. It would be much more cost-effective to operate a single data center as opposed to dozens of small machine rooms. Most systems can be run remotely. A new green data center makes sense if we can bring together administrative, instructional, and research infrastructure. If such a center existed, Rutgers could consider an internal private cloud.

Governance needs to be developed that considers the whole of University IT services. Some applications are best done centrally while others should be distributed. Decisions should be based on overall effectiveness and budgets distributed accordingly. The availability of funding within a unit should not be the primary driver of these decisions.

Email and course management systems present interesting challenges. They are technically easy to combine but user preferences are hard to overcome and recovering costs savings is a challenge.

RIAS is moving things in the right direction. Payroll, HR, Budgeting, Financial, and Procure-to Pay are integrated into a single University system. Adding an effective student system to RIAS is an important next step.

RUNet has converged data and voice onto a single cost effective network backbone. Video needs to be added to the mix. All classrooms should have access to RUNet.

Security vs. Usability

This trade off is often overlooked. When we make information more accessible, it is more accessible to the Rutgers community and to malevolent agents. Security reviews should be performed prior to deployment of any major applications or any application that accesses sensitive data. The more distributed the IT environment, the harder it is to manage and control access to information.

Authentication and Authorization should be separate functions. Authentication should be a central service and support multi-factor single sign on. Authorization should remain with the application. Rutgers ID cards and all system that read these cards should be based on the data maintained by the central authentication service.

Protection of information should be classified based on its sensitivity. Much of our most sensitive data is distributed and maintained in distributed units. At times this information ends up on desktops.

Reliability and Recovery

End to end metrics are essential. Strong links in a weak chain don't add value. Recovery (i.e., the time to recover from an outage) is often overlooked and is at least as important as reliability (uptime).

Backup and Archive are important. Most server-side systems handle this well but desktop support should be improved.

Possible New Directions

Mobile Apps are important going forward. Personalized, location-aware Rutgers-centric mobile apps should be given serious consideration.

Open source software provides interesting tradeoffs. It is not free. It usually costs 2/3 to 3/4 of what commercial software costs, but it allows you to control your own destiny.

IT services should be efficient, resilient, and secure. In support of these goals, IT guidelines should be established for properties such as usability, accessibility, testability, and change management. Services should, to the extent possible, be designed with these guidelines in mind.