



IT Strategic Plan

INFRASTRUCTURE PROPERTIES AND PLANNING

2016-2019

Purpose

The purpose of this document is to provide the general scope and direction for information technology (IT) in Infrastructure Properties and Planning (IPP). The goal is to establish and support a core set of information technology standards and to reach consensus on IT architecture.

With this plan, we acknowledge that we must shift our focus from managing infrastructure to creating services that differentiate IPP IT, transform our role from being strictly service providers to become service brokers, and transform our staff from mainly technical support providers to mostly consultants and service managers.

In addition, it is part of the overall mission of IPP Information Technology to align with the university IT Strategic Plan (2013-2018) and IPP's Strategy Map (2015-2018).

Vision

IPP IT strives to be the trusted partner providing technology solutions to help our supported units meet their strategic goals.

Mission

In support of the missions of the groups we support, we will:

- Provide consistent, quality services to our customers by understanding their individual needs, as well as, organizational goals.
- Continually upgrade, augment, and implement new technology to provide the highest level of efficiency for our customers and our network.
- Dependably strive to offer excellent customer service to ensure complete customer satisfaction.
- Support and manage the monitoring and control of critical campus infrastructure; including buildings, utilities, and computer networks.
- Develop, maintain, and enhance a secure, reliable, and innovative computing environment.
- Manage and support the specialized software systems that empower the university workforce around IPP services.

Overview

This plan lays out the objectives for the delivery and support of IPP IT services; including outlining initiatives that will help us meet these objectives. We also created a list of key principles to guide our overall decision-making and implementation.

Our IT strategic objectives fall into the overarching categories of:

- Stewardship
- Service Delivery
- Security and Compliance
- Sustainability and Accessibility
- Disaster Preparedness and Emergency Planning
- People

Additionally, we have an IPP IT Main Initiatives Roadmap for 2016-2019, which is outlined at the end of this document. Throughout this document, strategic objectives that support one of the main initiatives are color-coded as follows:



Guiding Principles

1. Wherever possible, IPP IT will utilize commodity services provided by central IT as long as value and economies have been demonstrated.
2. IT services will be developed and maintained with environmental impact and sustainability in mind. Sustainable tools, practices, and processes will be deployed where possible.
3. IT services will be developed and maintained with accessibility in mind, and we will strive to be the standard in accessible web design.
4. Move as much of our infrastructure as possible to the Cloud using Amazon Web Services
5. When looking for new software, we should buy before we build. We should also look to partner with another unit that may have the software that we need.
6. Wherever possible, we must continue to reduce our technical debt.
7. IPP needs IT systems that are reliable, efficient, stable, and secure.
8. We must be easy to work with, both internally and externally.
9. We must drive efficiency: streamline and optimize our organization to reduce or eliminate redundancy. Lean Process Improvement is key.
10. Governance of key IPP enterprise systems will be provided by executive or steering committees.
11. IPP IT will use current programming, project management, and business analysis methodologies; like Agile and Lean.
12. IPP IT will continually measure their performance via solid metrics, customer satisfaction surveys, etc.

Stewardship

IT stewardship is based on establishing best practices, leveraging existing solutions whenever possible, and practicing a standards-based approach to computing. Standardization directly equates to cost savings and efficiencies.

Strategic Objective: Utilize existing tools and services rather than create new whenever possible and practical

As a practice, we use CIT services whenever possible (ex: EZ-Backup, VM, Remedy, Oracle, Active Directory, SCCM). In addition, when a new project is requested, we examine existing systems to assess whether or not there is an existing application or service, either internal or external to IPP, that would meet our needs.

Strategic Objective: Remote desktop support

We use Bomgar for remote desktop support. Bomgar allows us to securely connect to a remote computer to troubleshoot problems. This enables us to provide support while limiting our travel time. This service is provided by CIT.

Strategic Objective: Computer Management

We use the central SCCM service for computer management. It is the best practice in IPP to manage computers through SCCM and Group Policy to maintain high levels of service and security.

Strategic Objective: Minimize Windows domains – PC based

For most of our administrative users, we are using the Cornell Active Directory Windows-based domain. IPP IT currently maintains three additional, separate domains: CUPD, Access Control, and EMCS. With Windows as our base, we have standardized on PCs as the supported hardware architecture.

Strategic Objective: Virtualization of hardware

Whenever possible, virtual servers are used. This significantly decreases hardware costs and operating expenses. We are currently utilizing the central VM service, however, as part of this strategic objective, we are creating a cloud strategy and planning a move to AWS.

We have set a policy that we will use virtual desktops (thin clients) wherever it is possible. VDI allows us to support many more users with fewer support staff. Thin clients provide an alternative to standard desktops and laptops. They come with significant cost savings in time and money.

Strategic Objective: Computer lifecycle management

According to Gartner, the decision to replace PCs is not purely technical; it is a business, financial, and technological decision. Analysis of computer replacement in IPP has resulted in a tiered model for replacement:

- Laptops – 4 years
- Desktops – 4 years

- Thin clients – 5 years

Some computers will last longer than their warranty period. After the warranty period expires, the value of the computer is so low that it is difficult to justify expending more than modest funds on repairs. We will not make major repairs on computer equipment that is past its warranty. If an older computer fails, Computer Support staff will make an assessment on the cost to repair. Obvious minor repairs, such as replacing a keyboard will be undertaken. However, a detailed forensic analysis of older equipment will not be conducted. It is the intent that Computer Support err on the side of replacing rather than repairing older equipment.

We purchase Dell computers as the university discount is significant. Departments will be periodically provided with computer hardware lists so that they may manage their computer assets. Departments are responsible for the cost of replacing computers.

Computer Support oversees the procedure for computer disposition in accordance with university policy and generally accepted good business practice. All viable equipment is donated to the Cornell Computer ReUse group. All other equipment is recycled through R5.

Strategic Objective: Web content management

We will utilize a shared, decentralized web content management strategy. Content management for departmental web sites will be done with an editing tool. With the editor, departments are capable and responsible for maintaining the content of their web sites. We will be moving most of our web sites to Drupal. Web application programming will be done by IPP Programming Services.

Strategic Objective: Standardized Databases

We use Oracle as our primary database management system. We also support other standard databases: MS SQL databases or MYSQL.

Strategic Objective: Enhanced Fault Detection and Diagnosis of Building Systems

We track over 20,000 real-time values in hundreds of building systems and are developing tools to improve our ability to detect impending problems before they rise to the level of alarms. (**Note:** a separate strategic plan for BACSI will be created)

Strategic Objective: Energy Use Dashboards

We support Energy and Sustainability in collecting and archiving energy use data and providing it to a Lucid Design Group server for presentation to the campus community. We also support an in-house portal for energy use data.

Strategic Objective: Treat Data As An Asset

We must ensure that IPP data is available to the university, both to people and to other systems.

We will use OBIEE as our standard tool for data reporting. OBIEE will be used to provide reports that support efficient and effective business practices.

Service

IPP IT must maintain current services with a high level of performance and reliability. We must also continually improve our efficiency and responsiveness.

Strategic Objective: Standardized help request system

Remedy, a service provided by CIT, is the standard help request system utilized by IPP IT. This allows us to have a uniform, predictable, transparent, and closed-loop resolution system for all IT-related issues. Additionally, we use the Central Help Desk for some Level 1 support.

Strategic Objective: Standardized response times

24 x 7 response is expected. Response time means contacting the user and communicating a plan. It does not mean that the issue will be fixed within the response time. Continuous communication until the issue is resolved is expected. Response times are divided into 4 categories:

1. Critical – 1 hour, 24 x 7 response
2. High – 2 hour response during business hours
3. Medium – 4 hour response during business hours
4. Low – 8 hour response during business hours

Strategic Objective: Continuous improvement

One of the expectations of IT systems is that they will be continuously improved. We must improve and modify our business practices in ways that align us with divisional and university priorities. It is our responsibility to identify innovative technologies and migrate them from the realm of innovation to adoption and practice by the departments that will benefit from them. In order to provide continuous improvement, we must be adaptable, responsive, and multi-talented. As part of continuous improvement, we will work with all levels of IPP to leverage existing systems and/or develop new resources in order to meet the needs of our users.

Some areas where we are examining future needs and trends for continuous improvement include:

- Mobile strategies
- Cloud-based applications
- Data management strategies
- Use of social media
- Procurement and deployment of devices
- BYOD (bring your own device) strategies

Strategic Objective: Change Management

We recognize that IT projects and routine maintenance often means change to the way people perform their work. IT change management is the process of controlling all changes which could impact IT's ability to deliver services. Change management includes a formal, centralized process of efficient and prompt approval, scheduling, and control to accommodate changes in order to ensure that the IT infrastructure stays aligned to business / service requirements and to minimize the risk of change-related incidents or a degradation of service quality.

All changes that are associated with a production, test, or development environment that pose a significant risk or user impact that may result in an outage or disruption of services will be formally requested, documented, evaluated, authorized, and communicated prior to implementation.

As part of a change, IPP IT will not be responsible for providing end user training. Departments are responsible for training. IT will identify and coordinate resources for training. In addition, IT may help train subject matter experts in departments to be available for support.

Security and Compliance

Attention to network and data security helps ensure the integrity and availability of IT resources. We must continuously assess security risks associated with technical vulnerabilities or with user behaviors and develop programs or processes to address those risks. As part of security, we maintain a comprehensive set of IT policies specific to IPP, as well as, ensuring compliance with university policy.

The IPP computer policy can be found at:

<https://confluence.cornell.edu/pages/viewpage.action?pageId=10946528>.

The IPP Data Security policy can be found at:

<http://www.IPP.cornell.edu/fs/docs/dataaccesspolicy.pdf>.

Strategic Objective: Compliance with university policy

IPP IT, and all users within our service group, must maintain compliance with ALL university IT policies:

- <http://www.dfa.cornell.edu/treasurer/policyoffice/policies/volumes/informationtech/index.cfm>

Strategic Objective: Server, Computer, and Data Security

We use the Central Firewall Service on all of our networks. Most IPP Virtual Services in the CIT VM environment are hosted in the Extra Tier for security.

All user computers are protected by CIT ACLs and an IPP IT centrally managed Windows firewall service. They have managed anti-virus and patching services. Configuration of user computers complies with the university Baseline Security Standards:

<http://www.cit.cornell.edu/security/requirements/secreqs-baseline.html>

IPP data is considered to be Cornell sensitive data. Configuration of data protection will comply with university data protection policies and standards:

<http://www.cit.cornell.edu/security/requirements/secreqs-confidentialdata.html>. IdentityFinder is managed by IPP IT and will be automatically run on most computers twice a year. Areas with access to federally regulated data will have IdentityFinder run once a month. Annually, everyone must attest that they are responsibly managing their access and storage of regulated data.

It is also vitally important that the equipment used to monitor and control building, utility and computer network infrastructure be adequately protected from security breaches. To this end, our systems are physically secured, reside on centrally administered VLANs or secured subnetworks, and are continuously monitored for abnormal traffic.

Strategic Objective: Web and application security

All web pages will be scanned for vulnerabilities before being moved into production.

All new applications will go through the IT Security Office for assessment.

Sustainability

Strategic Objective: Sustainable Computing

The goals of the sustainable computing initiatives in IPP focus on reducing our environmental footprint. We are working towards reducing, reusing, and recycling by centering our initiatives in the areas of power, waste, purchasing, and education.

- Reuse 95% of all turned over IPP computers. This is accomplished through donation to the Cornell Computer ReUse organization and occasional donations to local non-profit organizations.
- Purchase only Energy Star or Electronic Product Environmental Assessment Tool (EPEAT) registered products—including peripherals as they become available. We purchase Dell computers which are Energy Star and EPEAT registered. We monitor the EPEAT web site for peripherals as they become registered.
- Continue to develop and advocate for the thin client program. We are working with the director of each department to provide them with a list of computers that would make sense to convert to thin clients.
- Continue to raise awareness of sustainable computing best practices. We will continue with the Sustainable Computing initiatives as outlined in the Sustainable Computing Guide. <http://computing.fs.cornell.edu/sustainable>

Sustainable Computing is a principle that embraces a range of policies, procedures, programs, and attitudes that run the length and breadth of any use of information technologies. It is a holistic approach that stretches from power to waste to purchasing to education and is a life cycle management approach to the deployment of IT across an organization. The concept of Sustainable Computing considers total cost of ownership, the total impact, and the total benefit of technology systems.

Disaster Preparedness and Emergency Planning

IPP IT emergency preparedness is an ongoing process. We continually work to improve our emergency preparedness plans and capabilities to ensure that IPP can continue business operations.

Strategic Objective: Compliance with university policy 2.10: Emergency Planning Policy

IPP IT maintains an emergency and business continuity plan in compliance with university policy 2.10 via the Office of Emergency Planning and Recovery web site. This plan is updated, audited, and tested annually.

Strategic Objective: Plan for machine and/or location failure

Every server that we are responsible for is cataloged. This includes listing all services, application, shares, security, print queues, etc. We have instituted a plan for each server for transfer of services and/or redundant data locations to allow for single server or entire location failure. This also applies to the EMCS and the CEP which will soon have fully mirrored VM hosts, allowing both systems to continue most operations even in the event of an entire location failure.

Strategic Objective: “Down for a day” as allowable disaster down time

Our disaster plan allows for a one day down time as a result of an event. All **critical** services will be available within one day.

Strategic Objective: Off-site data storage

Move backups and data off-site to Amazon Web Services. Utilize two separate Amazon Zones for redundancy.

People

For IT staff to be successful, they need to understand technology, related business processes, and have the ability to relate to their customers and peers.

Strategic Objective: Encourage and facilitate staff self-development

To do this, we will:

- Create an individual development plan for each employee
- Set training standards and minimums for each job family
- Leverage Organization and Workforce Development programs
- Utilization and implementation of the Cornell IT Career Framework

Strategic Objective: Succession Planning

- Promote from within when possible
- Build management and leadership capacity within IPP IT
- Focus on diversity

IPP IT Main Initiatives Roadmap 2016-2019

