Title: Information Technology Architecture, Infrastructure, and Ongoing Operations Policy: 6905

Purpose

To provide the framework and principles for the University's Enterprise Architecture, IT infrastructure, and the ongoing operation of IT systems at Virginia State University.

Authority, Responsibility, and Duties

- Restructured Higher Education Financial and Administrative Operations Act, *Section 23.1-108 Code of Virginia*
- Powers of the Board of Visitors, Section 23.1-2702 Code of Virginia
- The Vice President for Administration, Chief Information Officer, and Director of IT Governance will maintain the framework for infrastructure, architecture and ongoing operations, along with the standards and guidelines through an annual review and updating when necessary.

Definitions

The following organizations and workgroups represent a sampling of higher education sources for IT best practices and evolving trends.

Campus Cyber Infrastructure (ACTI-CCI) Working Group of EDUCAUSE: helps educational institutions develop institutional strategies and plan their resource deployment in this emerging and evolving technological landscape and helps their users harness and optimize the power and capabilities of new integrated IT tools and systems for educational and research applications in higher education.

EDUCAUSE: is a nonprofit association dedicated to the advancement of higher education through the effective use of information technology. Members include representatives from institutions of higher education, higher education technology companies, and other related organizations.

Internet2: develops and deploys advanced network applications and technologies for research and higher education, accelerating the creation of tomorrow’s Internet.

Postsecondary Electronic Standards Council: is a non-profit association of colleges and universities; professional and commercial organizations; data, software and service providers; and state and federal government agencies.

Virginia Alliance for Secure Computing and Networking (VA SCAN) – VA SCAN was formed to help strengthen information technology security programs within Virginia. The Alliance was organized and is operated by security practitioners and researchers from several Virginia higher education institutions, including George Mason University, which was one of the four founders of the organization.

Policy Statements

Virginia State University adheres to an Enterprise Architecture framework and principles that maximizes the digital capabilities of the University.

Enterprise Architecture is a business strategy which captures, documents, classifies and analyses all aspects of the enterprise in order to make the Information relevant for decision makers, including business managers, business analysts and technology specialists.

Effective Enterprise Architecture is achieved through the application of a comprehensive and thorough process for describing a current and future structure and behavior for the University's processes, information, applications, technology and supporting human resources.

Principles

The Enterprise Architecture and ongoing operation principles will guide the selection, design and implementation of business solutions for the three aspects of Information, applications and technology.

All principles are inter-related and collectively applied to:

- provide a framework within which the University makes informed and considered Decisions about Information and Communication Technology (IT);
- establish evaluation criteria for the selection of products or product architectures;
- define the functional requirements of the Enterprise Architecture;
- assess existing IT systems and the future strategic portfolio, for compliance with the defined architectures; and
- support governance activities related to the University's Enterprise Architecture

Business Architecture Principles

The following principles apply to Business Architecture:

1. Decisions are made with the intention of achieving maximum benefit to the University.
2. Enterprise operations are designed with sufficient resiliency to ensure a high probability of continued operations.
3. Applications are developed for use across the enterprise in preference to similar or duplicative applications, which are provided to a particular section.

Information Architecture Principles

The following principles apply to Information Architecture:

1. Information is a valued corporate resource and is managed accordingly.
2. Data is Accessible and shared for users to perform their functions.

3. Each data element has an Information System Owner accountable for data quality.
4. Data is defined consistently across the organization and the definitions are understandable and available to all users.
5. Information is protected from unauthorized use and disclosure.

Application Architecture Principles

The following principles apply to Application Architecture:

1. Applications are independent of specific technology choices and therefore can operate on a variety of technology platforms.
2. Applications are easy to use and the underlying technology is transparent to users so they can concentrate on tasks at hand.

Technology Architecture Principles

The following principles apply to Technology Architecture:

1. Changes to applications and technology are only made in response to business needs.
2. Changes to the enterprise Information environment are planned and implemented in a timely manner.
3. Technological diversity is controlled to minimize the non-trivial cost of maintaining expertise in and connectivity between multiple processing environments.
4. Software and hardware conforms to defined standards that promote interoperability for data, applications and technology.

Information Security Architecture Principle

The following principles apply to Information Security Architecture:

1. Systems integrate with the University's active directory system, as appropriate.
2. Systems must meet the IT security requirements of Commonwealth of Virginia (COV) ITRM Sec 501-9, as appropriate

Cloud Computing Principles

The University's preferred position is to adopt and use Cloud Computing services, subject to business case and privacy considerations, and only after issues regarding security and risk have been identified and mitigated.

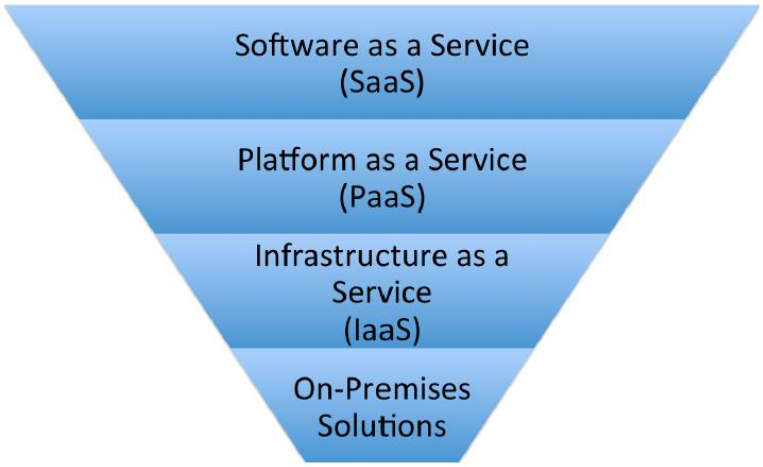

Figure 1: Cloud First approach to IT service deployment
(Reproduced from 'Cloud Strategy for Higher Education: Building a Common Solution'. Research bulletin. Louisville, CO: ECAR, November 5, 2014. Available from http://www.educause.edu/ecar)

This approach focuses the value of limited IT resources on delivering the most business value to the University. The following additional principles apply:

1. US-based Cloud Computing services must be the first option for any new services or when evaluating alternatives or revisions to current services.
2. When evaluating applications or platforms, those that can run on cloud infrastructure are chosen where institutional benefit from utilizing Cloud Computing services is identified and articulated during evaluation.
3. When evaluating Cloud Computing services, services are selected that run as high up the stack as possible (refer Figure 1).
4. Reasonable procedures are taken to ensure the security of University Information and compliance with all applicable COV and University Policy and Procedures.
5. All cloud service agreements are subject to the University's Procurement and Purchasing and Contract Management Policy and Procedure requirements irrespective of whether payment is required.
6. Integration with existing on-premises and other cloud services is considered, including identity management, networking, storage, etc. Decisions to not integrate will be made deliberately. Preference will be given to systems that have common functional integration capabilities, such as web service APIs.
7. Before contracting with a Cloud Computing provider, the University will be assured that the level of Information Security provided is at least equivalent to that which would be provided if the services were hosted internally to the University.
8. Technology Services develops and maintains a schedule of sanctioned cloud service providers and services.
9. Information System Owners must consult with Technology Services prior to commencing any relevant applications for the use of cloud services.

Openness Principles

Virginia State University recognizes the importance of open education, open systems, open source applications, open data and fostering support for open source communities.

To this end, the University encourages institutional practices that provide the broadest access to knowledge, Information, learning and training offered through formal education and, wherever possible, eliminating barriers to entry through increasing accessibility to Information. Through open access, the University encourages accelerated discovery and assists wider dissemination of research and Information funded from public sources.

User Experience Architecture Principles

The University will provide an intuitive and seamless User Experience across all online systems. Systems are designed to be simple to use, effective, and as automated as possible.

The University promotes collaboration and communication between Information System Owners prior to, during and post system implementation or change. Information System Owners must give consideration to system dependencies, the potential of one system to impact another and subsequently affect the overall User Experience.

1. The following Usability principles apply to the University online User Experience:
2. Systems are selected, designed and developed cognizant of the importance of demonstrating a User-first approach to ensure a satisfying online experience that supports user goals and task completion.
3. Systems that promote a superior User Experience will:

    a. where feasible, enable data to be collated in a usable form for analytical purposes to support operational and/or strategic business decisions

    b. display successfully and be compatible with Browser technologies

    c. be designed to provide an optimal User Experience across desktop and mobile devices

    d. include system content that is of a high quality and Searchable

    e. provide sufficient help resources to assist Users

4. System Interfaces must enhance Usability and be designed to:

    a. meet current Accessibility criteria

    b. reflect the University's digital visual identity, as far as practicable, within the guidelines provided by the University Brand Identity

    c. integrate selected common functionality

References

Educause Centre for Analysis and Research. (2014). *Cloud Strategy for Higher Education: Building a Common Solution*. Retrieved November 6 2013, from http://www.educause.edu/ecar.

TOGAF 8.1.1 Architecture Principles. Retrieved July 4 2017, from http://pubs.opengroup.org/architecture/togaf8-doc/arch/chap29.html.

Approved By: _____
President

9/6/17
Date: _____