West Valley College Technology Plan
2014/15 – 2016/17

Revised and approved by the Technology Advisor Committee 1/27/15
Approved by College Council 12/11/14
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I. Introduction

This Technology Plan for West Valley College is deliberately a first phase of a multi-year project to establish a full technology strategy for the college, integrated with West Valley-Mission Community College District’s Technology Plan. In this first phase, the plan will provide a survey of systems and services in place, outline immediate technology goals, and describe a framework for future evolution of this plan.

“Technology,” as a topic is wide-ranging. Although the term is popularly defined as the computers bought and software installed, the scope of technology is much broader. “Big Data,” “Software as a Service” (SaaS), “Cloud computing” or “In the Cloud”, “Virtual Desktops,” and many more technology-based references are constantly sprinkled into conversations, planning discussions, strategic decisions, fiscal analysis, and nearly every facet of institutional life, whether instructional, student services, business tasks, or strategic analysis.

Over the past decade, technology’s impact upon West Valley College has grown exponentially. New buildings and classroom renovation projects are designed with technology infrastructure and equipment in mind. Standard classrooms designed today feature an instructor workstation that includes a desktop computer, document camera, projection/audio systems, AV controls, and wireless networking, much of which was previously only barely defined. A recent faculty survey indicates an overwhelming demand for instructional technology with 85% (evidence) of faculty respondents indicating they use technology “all the time” or “most of the time” when they teach, an absolute tidal change in pedagogical trends.

All the while, technology supporting the institution’s work of registering and tracking students, maintaining fiscal controls, supporting human resources, creating reports, and myriad other background tasks has also continued to evolve. In today’s reality, technological support is a “given,” assumed to be present and fully functional. As new state and federal mandates are received, there is a definite implication that technology will be available to implement the requirements. Thus, the burden on the institution as a whole is to develop a strategy that is both responsive to current requirements and sufficiently flexible to quickly adapt to new challenges. In this multi-college district, these initiatives require close coordination between the college’s functional responsibilities and the district’s support of both infrastructure and major systems. This technology plan describes the Technology Advisory Committee, classroom instructional technology standards, current technology used on the campus, strategies for training and supporting faculty and college administration in using the technology, equipment procurement procedures (BRAC authorization), Total Cost of Ownership description, future initiatives, and a technology refresh plan including funding plans and resources.
II. Technology Advisory Committee

The West Valley College Technology Advisory Committee (TAC) is comprised of faculty, staff, and administrators in order to provide guidance in the design and implementation of instructional and administrative support technology used across the campus. Instructional Technology is in use in every classroom on campus from simple “Multimedia Classrooms” to advanced “Lecture Capture Classrooms.” Administrative technology relies largely upon District Information Services for provision of major systems and networking, with TAC serving as a strategic link to guide District IS strategy through membership in the District Information Services Advisory Committee (DISPAC). TAC has begun a 3-year Technology Plan process that describes needs, total cost of ownership (TOC), support, training, and replacement strategies for both instructional and administrative needs.

A. Technology Advisory Committee Mission and Goals

Mission: TAC is a standing committee comprised of administrators, technology support staff, classified staff, and faculty members with a college-wide perspective of information technology use. TAC is charged with recommending technology and policy for labs, classrooms, the instructional network, and other instructional and college administrative technology. The committee originates budget recommendations, contributes to technology planning, and recommends hardware and software support. To achieve integration of District and College technology strategies, a member of TAC attends DISPAC meetings, and a DISPAC member attends TAC meetings.

B. Operational Goals

- Developing a long-term technology plan that is aligned with the long-term goals of the college and the district.
- Developing an annual assessment of the college’s future technological needs in light of advances in technological capabilities, and technological needs created by new pedagogical approaches.
- Coordinating with the Budget Resource Allocation Committee (BRAC) to create and finance a Total Cost of Ownership model, including identifying funding sources for both on-going operational expenses and replacement of outdated technology.
- Working with college Information Technology Services (ITS) staff to set and maintain minimum technological standards.
- Identifying professional development needs with respect to the use of technology.
- Working with the Distance Learning Committee to ensure that adequate technological resources exist to support college distance learning and other technology-mediated efforts, especially as regards the Learning Management System (LMS) used.
- Ensuring that both long-term and short-term technology planning is integrated into institutional planning at all levels.
- Participating in the creation of policies concerning appropriate use of technological resources at both a college and district level.
- Making recommendations to the College Council and BRAC with respect to technological needs. Coordinating and consolidating technology acquisition and disposition: Hardware, Software, and Technology Support Services, including
reallocation of hardware and software as technology needs change and equipment is retired.

III. Technology Goals

1. Identify, evaluate, and implement new learning management system to replace the current ANGEL system.
   1.1. Form Distance Education Task Force to identify LMS alternatives.
   1.2. Test drive learning management systems in “sandbox” environments; Blackboard Learn, D2L Brightspace, and Instructure Canvas.
   1.3. Identify evolving distance education and hybrid LMS standards for face-to-face, hybrid, synchronous, and traditional online instructional modalities.
   1.4. Improve LMS responsiveness to student and faculty needs with an emphasis on providing an improved mobile experience.
   1.5. Ensure that accessibility standards are met or exceeded according to Section 508 of the Rehabilitation Act of 1973 and West Valley-Mission Board Policy: AP 5140, AP 6365.
   1.6. Continue to monitor the progress of the California Community Colleges Online Education Initiative (OEI) Common Course Management System (CCMS)

2. Virtualization Technology
   2.1. Investigate virtual desktop infrastructure (VDI) for classroom, labs and open-use environments.
   2.2. Restructure virtual machine infrastructure (VMI) to ensure maximum efficiency, reliable performance and scalability for future needs.
   2.3. Integrate overall virtual server system management, backup, and disaster recovery.
   2.4. Implement large-scale hybrid (solid state and spindle) disk storage appliance for virtual machine infrastructure (VMI) support and VDI delivery.
   2.5. Investigate solutions for student, faculty, and staff to provide on- and off-campus access to computing resources and college-hosted applications.

3. Network Support Structure
   3.1. Maintain high performance wireless networking and services throughout the College.
   3.2. Network support for VDI implementation

4. Technology refresh
   4.1. Establish computer hardware replacement parameters for instructional usage in classrooms, labs, and open-use spaces.
   4.2. Document current software applications used in the delivery of instruction and academic support services.
4.3. Leverage use of remote management and monitoring (RMM) tools to expedite software application, plugin, and security updates.

5. **Improve College document workflow including acquisition systems, retrieval, printing and archival.**

5.1. Integrate copier strategy with document management strategy, including document acquisition, indexing, archiving, retrieval, and integration with ERP data warehousing and recovery.

5.2. Replace desktop inkjet/LaserJet printers with multifunction copiers as printers via network interface
   5.2.1. Implement Equitrak system for print management from desktop systems, cost management
   5.2.2. “Follow me” printing capability

5.3. Remote job entry for Printing Services via PageDNA

5.4. Improve Printing Services job costs and implement a printing management solution.

6. **The College in conjunction with the District and Mission College will investigate and recommend a replacement ERP for the current Ellucian Colleague (Datatel) system.**


6.2. Participate in ERP acquisition analysis.

6.3. Identify College-District priorities of new ERP system in the key focus areas of; Human Resources, Payroll, Finance, Admissions and Records, Financial Aid, Counseling, Web and Self-Service Portal, student and auxiliary services.

6.4. Participate in ERP implementation.
**Goal 1: Migrate from ANGEL Learning Management System (LMS) to alternative LMS**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Assumptions</th>
<th>Principle Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify, evaluate, and implement new learning management system to replace the current ANGEL system.</td>
<td>ANGEL entered end of life support.</td>
<td>Instructional Technology, Distance Learning Committee</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tasks:</th>
<th>Status</th>
<th>Target Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1. Form Distance Education Task Force to identify LMS alternatives.</td>
<td>IP</td>
<td>Spring 2015 (Year 1)</td>
</tr>
<tr>
<td>1.2. Test drive learning management systems in &quot;sandbox&quot; environments; Blackboard Learn, D2L Brightspace, and Instructure Canvas.</td>
<td>IP</td>
<td>Spring 2015 (Year 1)</td>
</tr>
<tr>
<td>1.3. Identify evolving distance education and hybrid LMS standards for face-to-face, hybrid, synchronous, and traditional online instructional modalities.</td>
<td>P</td>
<td>2015 (Year 1)</td>
</tr>
<tr>
<td>1.4. Improve LMS responsiveness to student and faculty needs with an emphasis on providing an improved mobile experience.</td>
<td>P</td>
<td>2015-16 (Year 2)</td>
</tr>
<tr>
<td>1.5. Ensure that accessibility standards are met or exceeded according to Section 508 of the Rehabilitation Act of 1973, SB 105, and West Valley-Mission Board Policy: AP 5140, AP 6365.</td>
<td>O</td>
<td>Continuous</td>
</tr>
<tr>
<td>1.6. Continue to monitor the progress of the California Community Colleges Online Education Initiative (OEI) Common Course Management System (CCMS).</td>
<td>O</td>
<td>2015-16 (Year 2)</td>
</tr>
</tbody>
</table>

**Status Fields:**
C = Complete; O = On-going; IP = In progress; R = Review; P = Planned; NA = Not assigned
## Goal 2: Virtualization Technology

### Objective 2.1

**Assumptions**

Investigate virtual desktop infrastructure (VDI) for classroom, labs and open-use environments.

### Principle Parties

Information Technology & Services

### Tasks:

<table>
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<tr>
<th>Status</th>
<th>Target Year</th>
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</table>

#### 1. Establish proof of concept (POC) with VMware View and Citrix XenDesktop for concurrent testing with the District’s virtual desktop initiative.

#### 2. Evaluate virtual desktop client hardware and software solutions from HP, Dell, Citrix and VMware including; zero clients, thin clients, PC via browser, and minimum OS clients.

#### 3. Establish use case scenarios for students, faculty, and staff in classrooms, labs, and open-use environments. Use cases to serve as guidelines for the viability of replacing physical desktops with virtual, “PC-over-internet,” or virtual application-only delivery.

#### 4. Establish storage, memory, and application profiles for common use cases including classroom instructor stations and high traffic open-use labs.

#### 5. Investigate server and storage requirements including; IOPS, storage capacity, memory, user management and authentication/access control solutions for the delivery of persistent and non-persistent virtual desktops and applications.

#### 6. Examine usage and user needs on college provided physical desktop machines/thin client devices vs. desktop/application delivery to user provided machines and mobile devices (Bring Your Own Device; BYOD).

### Objective 2.2

**Assumptions**

Restructure virtual machine infrastructure (VMI) to ensure maximum efficiency, reliable performance and scalability for future needs.

### Principle Parties

Information Technology & Services

### Tasks:

<table>
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<tr>
<th>Status</th>
<th>Target Year</th>
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#### 1. Identify system deficiencies in current VMware server cluster, including physical host servers, storage appliances, network infrastructure and overall system configuration.

#### 2. System analysis will subsequently serve as foundation for re-configuration, to align system with industry best practices.

#### 3. Upgrade VMware vSphere (server virtualization operating system) from current installed version 5.0 to 5.5 or better on all host EXSi servers residing in the sever cluster.

#### 4. Re-architect and reallocate server resources within the existing server cluster to ensure maximum efficiency and redundancy.

#### 5. Upgrade guest operating systems on VMs (virtual machines) residing on host ESXi servers within the cluster. Currently installed on Red Hat v5.7 (RHEL), upgrade to latest v7 or better.
### Objective 2.3

**Integrate overall virtual server system management, backup, and disaster recovery.**

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Principle Parties</th>
<th>Tasks:</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Status</strong></td>
</tr>
<tr>
<td></td>
<td>Information Technology &amp; Services</td>
<td>1. Continue to virtualize physical hardware servers, including classroom file servers, streaming servers, print servers, and migrate into VMware vCenter cluster for centralized management, backup, and optimal resource allocation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Establish a robust and scalable backup strategy for all servers and server file systems.</td>
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<tr>
<td></td>
<td></td>
<td>3. Implement VEEAM, software based backup and recovery solution based on VMware's vCenter server.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Investigate solutions for remote site backup of all servers and server file systems, including cloud based solutions and services for hourly/daily/weekly snapshots, full backups, and consolidation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5. Investigate licensing for VMware vSphere Operations Management (vSOM) and VMware Distributed Resource Scheduler (DRS).</td>
</tr>
</tbody>
</table>

### Objective 2.4

**Implement large-scale hybrid (solid state and spindle) disk storage appliance for virtual machine infrastructure (VMI) support and VDI delivery.**

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Principle Parties</th>
<th>Tasks:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Information Technology &amp; Services</td>
<td><strong>Status</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Investigate hybrid storage solutions to improve overall system integrity, I/O latency and increase system IOPS.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Augment existing storage capacity within the existing storage area network (SAN) through the addition of new multi-protocol hybrid storage appliances.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Isolate server cluster VLANs including world network, management network and storage network traffic.</td>
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<tr>
<td></td>
<td></td>
<td>4. Align storage capacity to meet current data demands while also planning for the future demands required for the implementation of virtual desktops (VDI).</td>
</tr>
</tbody>
</table>

### Objective 2.5

**Investigate solutions for student, faculty, and staff to provide on- and off-campus access to computing resources and college-hosted applications.**

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Principle Parties</th>
<th>Tasks:</th>
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<tbody>
<tr>
<td></td>
<td>Information Technology &amp; Services</td>
<td><strong>Status</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Use VDI technology to provide students and faculty the ability to securely access college software applications and services from off-campus, on personal mobile devices, as well as traditional on-campus classrooms, labs, and open-use spaces.</td>
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<tr>
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</tr>
<tr>
<td>2. Work with District I.S. on implementation of a robust and scalable authentication system that provides students, faculty and staff access to file shares, virtual desktops, academic and business applications, and software-as-a-service (SaaS) enterprise systems.</td>
<td>P</td>
<td>2016 (Year 2)</td>
</tr>
<tr>
<td>3. Investigate with District I.S. for solutions to unify access control methods including single sign-on and multi/two-factor authentication.</td>
<td>P</td>
<td>2016 (Year 2)</td>
</tr>
</tbody>
</table>
### Goal 3: Network Support Structure

#### Objective 3.1

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Principle Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintain high performance wireless networking and services throughout the College.</td>
<td>District I.S., Information Technology &amp; Services</td>
</tr>
</tbody>
</table>

**Tasks:**

<table>
<thead>
<tr>
<th>Status</th>
<th>Target Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Improve wireless network penetration and coverage in instructional and open space environments.</td>
<td>IP</td>
</tr>
<tr>
<td>2. Implement multiple SSIDs and wireless &quot;café services&quot; in public and non-public areas through authentication and access control solutions including authentication procedures for guest access.</td>
<td>P</td>
</tr>
<tr>
<td>3. Develop and implement a solution for faculty and staff to connect to the Instructional and Administrative networks through authentication through the public SSID, or newly established SSIDs that serve the purpose of isolation and secured access.</td>
<td>P</td>
</tr>
<tr>
<td>4. Review wireless survey results semesterly in conjunction with District I.S. to improve wireless service for students, faculty, and staff.</td>
<td>O</td>
</tr>
<tr>
<td>5. Determine wireless network capacity, bandwidth usage, and authentication needs for transitioning to user provided devices, “bring-your-own-device (BYOD)”</td>
<td>P</td>
</tr>
<tr>
<td>6. Investigate with District I.S. evolving wireless standards including 802.11ac/n.</td>
<td>P</td>
</tr>
<tr>
<td>7. Investigate wireless only “flexible classroom/collaborative learning spaces” to provide robust and scalable wireless access to instructional learning environments.</td>
<td>P</td>
</tr>
</tbody>
</table>

#### Objective 3.2

<table>
<thead>
<tr>
<th>Assumptions</th>
<th>Principle Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network support for VDI implementation</td>
<td>VDI is deployed</td>
</tr>
<tr>
<td>Network support for VDI implementation</td>
<td>District I.S.</td>
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</tbody>
</table>

**Tasks:**

<table>
<thead>
<tr>
<th>Status</th>
<th>Target Year</th>
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</thead>
<tbody>
<tr>
<td>1. Identify VDI network requirements including bandwidth, TCP/UDP ports, firewall rule sets, authentication services, and wireless traversal to hardwire network.</td>
<td>P</td>
</tr>
<tr>
<td>2. In partnership with outside consultants and District I.S. implement industry best practices for the delivery of VDI over wireless and hardwire VLANs.</td>
<td>P</td>
</tr>
</tbody>
</table>
## Goal 4: Technology Refresh

### Objective 4.1

<table>
<thead>
<tr>
<th>Tasks:</th>
<th>Assumptions</th>
<th>Principle Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Establish computer hardware replacement parameters for instructional usage in classrooms, labs, and open-use spaces.</td>
<td></td>
<td>Instructional Technology</td>
</tr>
</tbody>
</table>

### Tasks:

1. Develop and create documentation of College system standards across all instructional classrooms, labs, and open-use spaces including operating systems, applications, configuration, and auxiliary services (printing, server file shares, peripherals).

2. Determine the viability of existing systems based upon the ability to support current standards, including software and hardware requirements. The update to College system standards will serve as baseline for replacement strategy.

3. Identify current software and applications used for instruction by faculty, departments, labs, and open-use spaces to serve as guidelines for streamlining application licensing, determining hardware requirements, and planning for resource allocation and room scheduling.

4. Establish refresh/replacement cycle for current hardware and software used in the support of instruction.

5. Coordinate with the Budget and Resource Allocation Committee (BRAC) to create and finance a total cost of ownership (TOC) model including identifying funding sources for both on-going operational expenses and replacement of outdated technology.

6. Identify the compatibility/viability of existing hardware and software to support thin client VDI technology versus the migration/replacement with a zero client hardware strategy.

<table>
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<th>Status</th>
<th>Target Year</th>
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<tbody>
<tr>
<td>IP</td>
<td>2015 (Year 1)</td>
</tr>
<tr>
<td>IP</td>
<td>2015-16 (Year 2)</td>
</tr>
<tr>
<td>IP</td>
<td>2015-16 (Year 2)</td>
</tr>
<tr>
<td>P</td>
<td>2016 (Year 2)</td>
</tr>
<tr>
<td>P</td>
<td>Continuous</td>
</tr>
<tr>
<td>P</td>
<td>2016 (Year 2)</td>
</tr>
</tbody>
</table>

### Objective 4.2

<table>
<thead>
<tr>
<th>Tasks:</th>
<th>Assumptions</th>
<th>Principle Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document current software applications used in the delivery of instruction and academic support services.</td>
<td></td>
<td>Instructional Technology Information Technology &amp; Services</td>
</tr>
</tbody>
</table>

### Tasks:

1. Consolidate instructional software library to provide College with global view of total licenses, deployed licenses, and direct monitoring of expiration dates and renewal cycles.

2. For widely distributed software, identify applications that are viable/require “site” or “campus” licenses. Plan to streamline licensing and implement central licensing servers and license management.

3. Create documentation for the software requirements for Instructional and Administrative use. Documentation will serve as baseline for new software standards.

4. Virtualize instructional software applications, empowering staff to update desktop operating systems and application configurations remotely and more efficiently.

5. Utilize virtual system designs to provide increased flexibility in deploying and updating software applications, thus improving security of all systems.

<table>
<thead>
<tr>
<th>Status</th>
<th>Target Year</th>
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<tbody>
<tr>
<td>P</td>
<td>2016 (Year 2)</td>
</tr>
<tr>
<td>P</td>
<td>2016-17 (Year 3)</td>
</tr>
<tr>
<td>P</td>
<td>2015-17 (Year 1-3)</td>
</tr>
<tr>
<td>P</td>
<td>2015-17 (Year 1-3)</td>
</tr>
<tr>
<td>P</td>
<td>2015-17 (Year 1-3)</td>
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### Objective 4.3

Leverage use of remote management and monitoring (RMM) tools to expedite software application, plugin, and security updates.

<table>
<thead>
<tr>
<th>Tasks:</th>
<th>Status</th>
<th>Target Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Examine current PC software imaging and updating practices to determine needs and suitability for remote management.</td>
<td>P</td>
<td>2015 (Year 1)</td>
</tr>
<tr>
<td>2. Investigate remote management and monitoring tools including Dell/Kace K-Box, Apple Remote Desktop (ARD) and Ninite Professional for scheduled and batch updating of software applications, browser plugins, and security patches.</td>
<td>P</td>
<td>2015 (Year 1)</td>
</tr>
<tr>
<td>3. For VDI, investigate native application management and layering solutions from Citrix and VMware as well as third party application layering and imaging solutions such as UniDesk.</td>
<td>P</td>
<td>2015-16 (Year 2)</td>
</tr>
</tbody>
</table>

### Objective 4.3

Continue to develop and expand Multimedia and Smart classroom standards for the delivery of technology enhanced instruction.

<table>
<thead>
<tr>
<th>Tasks:</th>
<th>Status</th>
<th>Target Year</th>
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</thead>
<tbody>
<tr>
<td>1. Continuously review Multimedia and Classroom standards to ensure that they meet faculty and student needs and are current with new and emerging technologies.</td>
<td>O</td>
<td>2015-17 (Year 1-3)</td>
</tr>
<tr>
<td>2. Incorporate the Multimedia and Smart Classroom standards into the planning, design, and implementation in new construction or remodeled buildings.</td>
<td>O</td>
<td>2015-17 (Year 1-3)</td>
</tr>
<tr>
<td>3. Continue to provide classroom Instructor stations with enhanced technology configurations including, dual-boot or VDI machines, document cameras, A/V control systems, PTZ cameras, connections for guest laptops and mobile devices.</td>
<td>IP</td>
<td>2015-16 (Year 2)</td>
</tr>
<tr>
<td>4. Continue to provide lecture capture recording and on-demand streaming for face-to-face, hybrid, synchronous, and distance education classes.</td>
<td>IP</td>
<td>2015-16 (Year 2)</td>
</tr>
<tr>
<td>5. Plan for an increase in digital media consumption and subsequent storage demands. Identify current capacity restraints and create a scalable storage infrastructure.</td>
<td>P</td>
<td>2016 (Year 2)</td>
</tr>
<tr>
<td>6. Continue to expand digital video libraries on YouTube and iTunes University.</td>
<td>IP</td>
<td>2015-17 (Year 1-3)</td>
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## Goal 5: Document Acquisition and Management

<table>
<thead>
<tr>
<th>Objective</th>
<th>Assumptions</th>
<th>Principle Parties</th>
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<tbody>
<tr>
<td>Improve College document workflow including acquisition systems, retrieval, printing and archival.</td>
<td></td>
<td>Administrative Services, Information Technology &amp; Services</td>
</tr>
</tbody>
</table>

### Tasks:

<table>
<thead>
<tr>
<th>Task</th>
<th>Status</th>
<th>Target Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1. Improve Printing Services job costs and implement a printing management solution.</td>
<td>P</td>
<td>2015 (Year 1)</td>
</tr>
<tr>
<td>5.2 Remote job entry for Printing Services via PageDNA</td>
<td></td>
<td>2015 (Year 1)</td>
</tr>
<tr>
<td>5.3. Integrate copier strategy with document management strategy, including document acquisition, indexing, archiving, retrieval, and integration with ERP data warehousing and recovery.</td>
<td>P</td>
<td>2015-17 (Year 1-3)</td>
</tr>
<tr>
<td>5.3. Replace desktop inkjet/LaserJet printers with multifunction copiers as printers via network interface a. Implement Equitrak system for print management from desktop systems, cost management b. &quot;Follow me&quot; printing capability</td>
<td>P</td>
<td>2015-17 (Year 1-3)</td>
</tr>
</tbody>
</table>
## Goal 6: Enterprise Resource Planning (ERP) Replacement

<table>
<thead>
<tr>
<th>Objective</th>
<th>Assumptions</th>
<th>Principle Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>The College in conjunction with the District and Mission College will</td>
<td>Datatel is end of life.</td>
<td>ERP Steering Committee, District, West Valley College,</td>
</tr>
<tr>
<td>investigate and recommend a replacement ERP for the current Ellucian</td>
<td></td>
<td>Mission College</td>
</tr>
<tr>
<td>Colleague (Datatel) system.</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>Tasks:</th>
<th>Status</th>
<th>Target Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1. Business Process Analysis (BPA) for District recommendation.</td>
<td>IP</td>
<td>2015 (Year 1)</td>
</tr>
<tr>
<td>6.2. Participate in ERP acquisition analysis.</td>
<td>P</td>
<td>2015 (Year 1)</td>
</tr>
<tr>
<td>6.3. Identify College-District priorities of new ERP system in the key focus areas of; Human Resources, Payroll, Finance, Admissions and Records, Financial Aid, Counseling, Web and Self-Service Portal, student and auxiliary services.</td>
<td>P</td>
<td>2016 (Year 2)</td>
</tr>
<tr>
<td>6.4. Participate in ERP implementation.</td>
<td>NA</td>
<td>2016 (Year 2)</td>
</tr>
</tbody>
</table>
IV. Current Inventory and Instructional Technology Support Services

A. Classroom Standards
The College standard for classroom configuration includes four classroom types: Standard Multimedia classrooms, Distance Learning classrooms, two types of lecture capture configurations, and computer labs.

Instructor’s Station, Multimedia Classroom
The Multimedia Classroom is the baseline classroom configuration and is the minimum construction standard as buildings are renovated and rebuilt. District IS and WVC ITS are developing a set of standard networking, electrical, and structural standards to be incorporated into all classroom designs. Naturally, these standards will evolve as technology changes; the intent is to constantly provide, at a minimum, technology-enhanced classroom experiences. All of the additional configurations explained below build upon this basic classroom standard.

Each of these classrooms has an instructor workstation equipped with a dual boot iMac computer (loads either Windows or Mac OS); internet access; base image with a browser (Explorer [Windows], Safari [Mac] and Firefox) and Microsoft Office apps (Word, PowerPoint, Excel); a document camera; LCD projector; sound system; projection screen (manual or electric); and an AV control system (user interface, switcher). Some rooms have a single projector and screen, some dual projectors and screens, allowing multiple source displays on each of the two screens.

Instructor’s Station, Distance Learning Classroom
Same configuration as the Multimedia Classroom with the addition of a built-in video conference system, single or multi remote pan, tilt, zoom (PTZ) cameras, and microphones.

Lecture Capture (Basic)
Same equipment as a Multimedia Classroom with a single PTZ camera mounted on the back wall. The signals from the camera and desk microphone feed into a Mac Mini that’s controlled via virtual desktop from the main instructor iMac. We use the Quicktime Broadcast app to record the lecture/presentation and the AV control system provides a monitor, PTZ camera control, and preset shots. Each recording is output to a generic mp4 file available for file transfer to a thumb drive.

Lecture Capture (Advanced)
Same configuration as the Distance Learning classroom with the addition of access to an Accordent Lecture capture system. Accordent records video, audio, and images from the instructor iMac. All signals feed into the Accordent hardware and subsequent recorded files are archived on the Accordent server. The playback is available via a web link URL provided to instructors and students and plays in a Silverlight browser window that features video of the speaker and images from the iMac, seen in separate frames within the browser window.

Computer Classroom
Several computer labs are setup in classrooms around campus that feature mostly iMac computers for the students and instructor. The base image is enhanced with additional software as requested by the instructor for that semester. In addition there are “open labs” in Counseling, Math Resource Center, Tutorial, ESL, Library, and Writing Center. These labs are open to students that utilize those services. The Library lab is open to any registered student.
B. Instructional Applications and Systems

The college uses a variety of applications and systems to support student learning and faculty instruction. These systems are administered by college ITS staff with background support coming from the District IS Department.

Lecture Capture and Streaming Services

West Valley College acquired Accord Technologies lecture capture software and server hardware as a key part of the Fox Technology center when construction of that facility was completed in 2009. Control rooms with commercial-quality consoles adjacent to both Distance Learning classrooms and the Fox Center Auditorium permit live recording of monitoring of content. Using multiple professional-quality camera systems integrated into Distance Learning Classrooms and the Fox Center’s Auditorium, lectures and events can be captured live, stored for later streaming through web servers, or broadcast live through transmission over a fiber network to a local cable system head-end, currently located in the library.

An alternative opportunity for lecture capture exists in a growing number of classrooms, both within the Fox Center and in other campus areas as new construction permits the installation of the required multimedia equipment. These systems typically include a Mac Mini computer with Quicktime Broadcaster software. A single camera, mounted in the rear of the classroom, is used to capture the classroom lecture content and student presentations. These classroom systems are typically used to capture a live lecture to be used later as an on-demand resource and study supplement for regular lecture and hybrid lecture classes.

Individual instructors frequently rely upon Camtasia, a video capture and editing software tool that can be installed on either Windows or Macintosh computers. Using a local camcorder or even the built-in video camera commonly configured on newer desktop and laptop computers, Camtasia permits the instructor to personally capture and edit their own content for later streaming or presentation via downloaded video file.

Captured content is stored on a college-maintained server, streamed on demand. Streaming links are embedded into web pages, such as for training videos linked to pages within the college’s web site, via OU Campus, or within distance learning pages within the Angel Learning Management System. Accordent, Quicktime, and Camtasia all provide an ability to convert the video content into multiple formats for streaming to computing and mobile devices.

College ITS staff provides both group and individual training as demand indicates. The use of streaming services is increasing as newer classroom increase ability to record content.

ANGEL Learning Management Systems

The college uses ANGEL as its official Distance Learning management system. It is hosted on Angel’s secure servers off-site. Users are required to login with a username and password to access the system. ANGEL allows instructors to create Virtual Learning Environments for online, hybrid or blended (web-enhanced) classes. The college Instructional Technology and Services department provides primary user-level support for ANGEL, with second tier support by the vendor. The vendor provides all system maintenance, upgrades, backup, and similar background support services.

Blackboard acquired Angel, formerly an independent Learning Management System (LMS)
vendor, in May, 2009, as one of a number of similar acquisitions made by Blackboard. As an independent, Angel struggled with their ability to remain on track with rapidly increasing regulatory and instructional demands upon the Angle LMS. Upon acquisition, Blackboard announced both an intent to continue to support Angel and a predicted end-of-life in October, 2014. However, Blackboard has now announced a firm end-of-life for Angel as of October 15, 2016.

West Valley and Mission Colleges acquire LMS support jointly as a district initiative, with the vendor contact having been maintained through Fred Chow, now retired Dean of Technology at West Valley. Chow predicted Angel’s demise, signing a two-year license that will expire in September, 2015.

As a joint “task force,” West Valley and Mission Colleges’ Technology Advisory Committees embarked upon a study of selected LMS alternatives in early 2015; the objective being to select a potential alternative LMS and to identify a conversion path from Angel before the end of the Spring 2015 semester. To accomplish this, several LMS “sandboxes”, or trial installations of the alternative systems, will be established so that select faculty and staff members may inspect the operations and features of the alternatives.

Guiding this search are some realities: Neither the District nor either college has sufficient technical staff or knowledge of LMS software to adequately support “open source” alternatives or Massive Open On-Line Courses (“MOOCs”), regardless of their popularity among colleges as reported in surveys. Therefore, to consider Moodle or other open source systems, the colleges will need to contract with a vendor that can both host and support the system. Blackboard, for example, purchased Moodlerooms nd NetSpot, both support providers for Moodle LMS. However, Blackboard’s current CEO, Jay Bhatt, questioned open source solutions during an interview for Bloomberg TV on January 6, 2014. (http://www.bloomberg.com/video/what-s-the-future-of-education-technology-tHo75SZYS_C8AFsdZuGeZg.html). The search for an Angel replacement will not be a simple one.

**WVC Portal**

The portal provides students and employees with secure access to critical information. For students, information such as class registration system, current class schedule, financial aid information, and unofficial transcript, grades, units and GPA, class roster, and current class schedule. For employees, information relative to personnel, budget, and purchasing information can be accessed as well as processed.

The college portal is a part of the Ellucian-provided Colleague ERP system. Based upon Microsoft’s Sharepoint platform, it provides a user interface into the Colleague database for course, student, financial, and other information. The “home” screen is a general page that provides a platform for posting pertinent information to be read by students or staff. As a district system, it is supported by District IS for both colleges and the colleges provide both guidance and feedback to the District regarding operational and reporting requirements, implemented by District IS staff.

The District, in conjunction with the District Council’s sub-committee, is studying potential replacements for the Colleague ERP. This critical system is poorly supported by Elucian, a firm.
that was created by a combination of two formerly independent providers: Banner and Datatel. Datatel, renamed Colleague following the merger, appears to be repositioned as a small college ERP. Ellucian’s “Road Map” does not specifically mention Colleague in its future development plans, but from user experience within the District, Ellucian is apparently not investing in any major upgrades to the system, especially as regards the ever-changing and increasing compliance mandates from both Federal and State regulations. That reality, plus the poor choice made over a decade ago in the initial implementation of Datatel wherein key modules were not implemented – significantly, the Human Resources module, which is a key bridge for implementing employee assignment contracts and payroll systems – has driven the District’s need to study a replacement. At the end of 2014 and through Spring 2015, a Business Process Analysis study is underway through Spectra Information Group (SIG), a vendor providing system consulting and operational support for large-scale ERP systems, especially Banner. At the conclusion of the study, a general recommendation is to be made regarding ERP systems strategy. The District’s Chancellor, Vice Chancellor for Administrative Services, and District IS will review SIG’s study, potentially resulting in a decision to replace Colleague, a process that will most likely require three or more years for transition. The cost is borne by the District, not by the college, but there will be an impact upon college personnel as detailed transition studies are undertaken.

There also are implications for college instruction as the conversion of the ERP system must be integrated with whichever LMS is selected to follow Angel within the District. These are both quite complex and detailed system changes; to have both occurring within a short timeframe will be a major challenge but there is little viable alternative.

**OmniUpdate**

OmniUpdate (OU Campus) is the college web content management system (CMS). It is the platform by which all college webpages are designed and managed. The system is versatile enough to provide a variety of interfaces and is user friendly enough to allow the average faculty, staff, or administrator to create and maintain their own pages. The ease of use is beneficial as it allows the college webmaster to concentrate on the major components of managing the college website while numerous users maintain their own interests. That aspect of OU Campus was a specific reason the product was selected for both West Valley and Mission College; the contract with OmniUpdate includes both campuses, but each campus separately maintains their own developmental and web page identity.

OU Campus at West Valley College is supervised by the college’s media content editor as one aspect of the college’s digital presence. Through group training session and individual support, the task of maintaining web content is largely disbursed to individual faculty members, program managers, and appropriate staff members throughout the college. This approach provides more immediate ability to maintain currency of web content, with templates and guidelines as standards for consistency of web page quality, accessibility, and user interface design for navigation.
CurricUNET
A state-recognized software system from Governet providing management tools for a variety of curriculum and curriculum-related tasks. Foremost, Curricunet automates the development of curriculum and provides a workflow approach to the approval process of curriculum development, from faculty initiating the course outline of records (COR), approvals of program department chairs, division chairs, Curriculum Committee members, Academic Senate, Office of Instruction, and the board prior to submission to the State Chancellor’s office. Once courses or programs are approved by the State Chancellor’s office, they are then imported into Ellucian Colleague to support course scheduling. CurricUNET maintains the historical CORs while Colleague contains the current and accurate course and program information that serves as the foundation for Degree Audit, Catalog information, and CCC apply.

Separate modules from Governet include Student Learning Outcomes and Assessment (SLO/A&A) filed for each COR and program which ensures that faculty mindfully construct SLO/A&A whenever he/she develops a new course or revise them based on the SLO/A&A results. Another module tracks Program Review reporting at the program level, allowing the college to schedule the reviews, create review content queries, and consolidate the overall results of the reviews college-wide.

Curricunet is a “cloud-based” system, supported by Governet and hosted on their servers off-site of the college. Both West Valley and Mission College subscribe to Governet for Curricunet services, but each college maintains their own, individual identity. Although the systems are similar at both colleges, there are specific differences. The Colleague interface, however, is the same for both colleges as Colleague requires the same data for each college.

West Valley has acquired Governet’s Curricunet “Meta” upgrade that provides enhanced functionality for Curricunet. Although the college has paid for this upgrade, it has not been implemented as that requires specific planning with Governet as to how each of the selectable features are implemented and how they communicate with Colleague for data transfer.

The college has also acquired the SLO module from Governet; that module as well is not implemented and the implementation schedule is presently uncertain. Also uncertain is the acquisition of the Program Review module. Although the college’s curriculum and other committees have extensively discussed these additional modules, acquisition and implementation has been put “on hold” due to concerns voiced at recent California Community College CIO conference meetings. This is a continuing topic of discussion.

For some time, the presumption has been that the state’s Chancellor’s office would adopt Curricunet as the standard systemwide. Given the current remarks, this initiative seems to have slowed.

Adobe Creative Cloud
As a district wide initiative, a site license has been purchased, with annual renewal, for cloud-based delivery of Adobe software. Rather than purchase individual groups of licenses, this mode of licensing was chosen as a way to reduce the total expense for Adobe software across campus. As a benefit to the college, it enables the software to be loaded on any campus systems, avoiding
the problem that occur when software is purchased only for a particular classroom and then is found in use elsewhere. An additional benefit is that the license provides an inexpensive way for employees to acquire the software for their own personal use.

**Turnitin**
Following a few years’ subscription to Turnitin by specific departments, the college recently acquired a campus-wide license for Turnitin as an instructional tool. Turnitin provides scrutiny over student submissions to detect plagiarism. The system is available as a cloud-based system.

**C. Library Systems**

**Innovative Interfaces**
This software provides the college with an integrated library system. The system interfaces with the Colleague registration system allowing all current students at both colleges to be automatically entered into the library system. Once the data exchange is complete, students are able to access an extensive array of online resources including electronic databases, reference guides, and additional services on- and off-campus (catalog database, patron circulation system, Link+, and proxy server access to all of our licensed subscription databases (Ebsco Discovery, ebrary, Grove Art Online, CQ Researcher, Facts on File and more). The library’s database is now hosted on the Innovative Interfaces server off-site and not locally.

**Pinnacle Pay-To-Print Systems**
Networked printing, photocopy machines within the library. The system has been in place for a number of years, maintained by the vendor and supported without college funds through the copy charges on the machines. Students pre-pay a card balance on a vending machine-type device and may recharge the card as needed. Although this system works somewhat satisfactorily, a review will eventually be made to determine whether an alternative would provide better service. Currently, the system works only on campus-owned computers, not student-owned devices.

**Libguides**
Hosted by Springshare – interactive web based research guides.

**ContentDM**
Archival client software which is connected to the Califa server for loading and indexing digital images from the college’s archives.

**OCLC Connexion**
Client software for accessing OCLC for cataloging records and downloading them into Millenium.

**Library web pages**
provide access to our integrated library system, databases and research guides on-line. The library’s web presence is managed via OmniUpdate’s OUCampus, with specific pages developed and devoted to student and staff access on-line from any location.
D. Server Infrastructure
A virtualized server infrastructure supports the production of the WVC website, calendar system, instructor webpages, and streaming video. VMware (virtual servers) provide a scalable and flexible application system. The VMware environment resides on a cluster of servers and a storage area network (SAN) that has the capacity of 6 Terabytes of RAID (redundant array of independent disks) storage. The majority of college-managed servers are Linux-based except where a Windows server is required due to the system being hosted. These servers, although located within District IS facilities on West Valley’s campus are managed by WVC ITS staff members.

E. Data Backup, Storage Support
Currently, the college’s servers are supported for file and backup via a Hitachi Storage Area Network system. While the Hitachi system is functional, it is limited compared with more contemporary storage technology. Fundamentally, because the Hitachi system is based upon rotating disk technology and essentially makes copies of file content as backup, the system is less efficient than other alternatives. At present, two alternative storage system offerings are being considered as a part of a longer-term strategy: Nimble Storage Systems and Tegile Systems. Both are very-high capacity, scalable, storage systems designed to support hypervisor implementation on an enterprise level rather than server level as the older Hitachi system was designed. WVC ITS staff are evaluating these two alternatives, which differ in technical approach. Nimble’s offerings are based upon inexpensive disk technology with compression and utilities that enhance both backup and restore functions. Tegile has a somewhat different approach, using solid-state flash storage in addition to rotating storage, with features similar to Nimble’s but with data de-duplication added to enhance data management. As the campus technology strategy evolves, the supporting storage structure becomes a key component, thus is a critical decision point. A decision to move to one of these alternatives is staged for Spring 2015.

F. Virtual Desktop Infrastructure (VDI)
In nearly every instance across the campus, the older model of a desktop computer provided for each employee or student is an unsupportable model. Imaging and installing each machine is both time-consuming and error-prone. The reality is that software maintenance, operating system and application updates, “bug” patches, etc., are skipped and systems get out-of-date. The implications are potentially quite severe: Software may fail to operate properly and, even more critical, unpatched software can become a point of intrusion for malware and hacking. Even with system management tools, such as K-Box, the maintenance of over 1,000 desktop machines in classrooms becomes impossible.

Individually configured machines also limit classroom assignment flexibility. During the course scheduling process, faculty and office coordinators must be kept aware of which rooms have what software, with most classrooms having a standard set of software such as Microsoft Office, but only certain rooms will have AutoCAD, Adobe Creative Cloud, or Maya. Another impact of the individual machines for specific software model is that hardware updates become more and more critical as software changes push the hardware support requirements.

To alleviate this personnel- and hardware cost-intensive problem, the college’s ITS group and
TAC are engaged in investigation of Virtual Desktop Infrastructure (VDI) alternatives, with the key competitors being VMware and Citrix. A proof-of-concept for each of these alternatives began in December 2014 and will continue through Spring 2015. To support the VDI initiative, the previously mentioned data storage solutions, Nimble and Tegile, will also be demonstrated in a proof-of-concept implementation. At the end of this exercise, a full analysis of the alternatives will be completed. This analysis will consider the cost of hardware, a decision as to whether existing hardware might continue to be deployed given that most of the VDI implementations require only a “thin client” with high back-end server support, thus extending the useful life of in-place equipment. The analysis also includes the impact upon human resources, given the much different nature of supporting services required; the flexibility of classroom assignments; the ability to quickly and efficiently implement new and updated software; and the ability to provide students with off-campus support in addition to traditional on-campus classrooms.

This initiative started mid-fall semester 2014 with vendor contacts, assisted by District IS as well as the college’s ITS staff. Realizing the complexity of the initiative, vendor support for planning, implementing, and testing a VDI environment is also being considered and will be a cost to acquire this technology. As a path to the future, however, this is being considered a key part of the longer-term Technology Strategic Plan, both by the college and by District IS, where similar investigation is taking shape.

**G. Student Services**

**CCC Apply**  
The system allows prospective student to apply online; the software was developed by XAP Corporation with the support of the State Chancellor’s Office and is used by many California Community Colleges. CCCApply is managed by the state chancellor’s office, with District IS providing the local support required.

**SARS Trak**  
This system has multiple functions. The college uses SARS Trak for collecting students learning and services activities every time they check in and out of service sites (counseling, labs, library, etc.). It records reasons for their visits, verify student identification, courses that students are taking and its affiliation with the services received. In addition, the system will register arrival and departure times allowing the college to accurately and correctly manage the positive attendance contact hours from these learning and services activities. SARS Grid assists counselors in scheduling counseling appointments, and assessment appointments. SARS is managed by District IS.

**Laserfiche**  
Used at the college primarily for document retention and retrieval by Admissions & Records and Financial Aid, Laserfiche replaced microfilm as the archival standard. By scanning, saving, and indexing document images, these key areas for student records are able to manage their documentation needs. However, the Laserfiche system is an older and less efficient system than some contemporary alternatives and serves a very limited purpose when considering the need for document archiving and retrieval as a district-wide, institutional perspective and there is a need to make available document retrieval as a part of an overall data management objective. Laserfiche is managed by District IS.
**Document Management**

To expand document management capabilities throughout the institution, the college Vice Presidents of Administration and District IS are investigating systems that essentially make each of the copiers located in offices a document management workstation. All copiers within the district are now network-connected and are able to act as computer printers and scanners as well as copiers. Users may now scan a document that is automatically e-mailed to an address. Taking this one step further, systems such as OmniPage’s Nuance turn the copier into a document archival tool, automatically filing scanned pages. The system is capable of being integrated as a part of an ERP system so that documents can be tied to other institutional data: For example, currently, the ERP system permits displaying a summary of charges that can be “drilled down” to a voucher, invoice, purchase order, or similar reference, but cannot go beyond that level to display the actual document involved. Human Resource contracts for faculty assignments are not accessible, though the payroll charges can be viewed. A new approach to document management seems inevitable in the current data-driven environment. As a part of business practices studies, this alternative is being considered.

**V. Administrative Systems**

A variety of applications and systems are in place for administrative purposes and are maintained by the District I.S. Department in conjunction with input from the college administration.

**Microsoft Site License**

Through Computerland, Microsoft software is available on a district-wide site license whereby user applications, such as Microsoft Office, and system applications - i.e., operating systems, servers, MS SQL, Exchange, etc. -- are made available on an annual, renewable license. This both lowers the cost to the district overall, and enables the district to implement the latest software as needed.

**Ellucian Colleague “ERP” (“Datatel”)**

Ellucian’s Colleague system is the District’s primary enterprise resource planning (ERP) system, installed more than a decade ago. Ellucian’s own “roadmap” does not indicate much developmental investment in Colleague and the system’s features are rapidly aging. Maintaining the system has become a rather complicated and frustrating process. Added to this is the simple fact that the District never fully implemented all modules, including some key modules such as Human Resources, a key module for tracking job assignments, contracts, and payroll. To try to add these modules now, though possible to do, is simply an impractical option, requiring as much work as choosing an alternative system to install. Thus, there is a district-wide study regarding potential replacement of Colleague that will report early Spring 2015 with an anticipated mid-year decision for ERP strategy going forward.

**Ad Astra - Facilities Room Inventory**

Ad Astra is a system, managed by District IS, which provides facilities inventory for room assignment, usage reporting, and other management services. Mission College has more fully implemented Ad Astra, while West Valley delayed their implementation until Spring 2015, largely due to the difference in the way Mission and West Valley scheduling is done. Mission has a central scheduling function for room assignments; West Valley is distributed to each of the individual division Senior Office Coordinators. Until recently, Ad Astra was limited for bi-
directional update between Colleague and Ad Astra, requiring duplicate entries. With a recent upgrade to the system, Ad Astra is now more responsive.

Although Colleague does have a room assignment module, which the District owns, it was not implemented because many users felt it was non-responsive to their needs. While that decision may have merit, it does illustrate a basic structural issue in that the solutions often are a patchwork of third-party systems rather than the more intentionally integrated native system modules. This approach compounds the difficulties when maintaining Colleague because the data exchange between Colleague and other applications is inherently unstable, based upon specific current software that can be disabled when Colleague’s updates are applied.

**Microsoft Exchange**
All district e-mail and calendaring services are maintained as a part of Microsoft Exchange and managed by District IS on locally installed servers. The primary user interface is Microsoft Outlook, which is available either as a part of Microsoft Office or as a web-based application.

**Mass Notification System**
Everbridge allows the district to send emergency notification messages to all registered faculty, staff, and students during a crisis or emergency. The service is available through WVM Alert. Recent emergency events have shown problems related to the notification system, causing a review of Everbridge’s applicability.

**Work order System for Facilities, IS**
To control service requests, the District maintains work order systems permitting users to individually request support services. District IS uses an older work order system that has been in place for several years. A newly-launched application from Maintenance Connection tracks user requests for repairs and project for District Facilities.

**VI. Technology Training**
The college provides relevant, current, hands-on technology training for faculty, students and staff. Currently, the college does not rely on one centralized department for technology training; however, appropriate training opportunities are made available to the college community based on the type of technology they use. The college assesses training needs by consulting with end users primarily through the Technology Advisory Committee, Distance Learning Committee, and via input from Program Reviews and SLO/A assessments. Feedback obtained from these participatory governance groups confirmed there are needs for ongoing technology specific training so as to better perform their respective job duties in instructional and student service areas.

**A. Faculty and Staff Training**

**Online Instruction Training for Faculty**
The college offers a comprehensive "Introduction to Online Instruction Course Design" program for faculty. In addition, the Distance Education Coordinator and Digital Media and Media Producer offer ongoing distance learning workshops in order for faculty to stay current with rapid changes in technology, state and federal regulations, and pedagogical best practices.
eLearning Web Site
The college's eLearning website, provides comprehensive information, resources, and training regarding online courses both for faculty and students. The website includes well designed and user friendly videos: Introduction to eLearning, Student Success, Instructor Preparation, ADA and Accessibility, the F2F Classroom and Best Practices.

Lynda.com Faculty & Staff on-line training
The District, in Fiscal Year 2014-2015, approved funding for the on-line training service, Lynda.Com, for all employees. Human Resources is managing the availability of this service, which has been well-received by staff members, indicated by increasing usage.

OmniUpdate Training
OmniUpdate training, developed by the college’s Instructional Technology Support staff, is for faculty and staff who manage components of the college website such as department, division, programs, and committees. The training is designed and organized based on different knowledge level and end user's needs. For basic users, training takes place in a 90-minute open workshop environment located in one of our 35-station computer labs in the Fox Building. Basic users are defined as those who will use the basic OU functions to edit their personal or department pages. The lead trainer provides step-by-step guidance from the instructor's computer that's displayed on dual projection screens. Roaming co-trainers provide support throughout the classroom. Learning outcomes for the basic users understand how to find their personal or department page, login, upload documents, add headers, text, graphics, photos, provide links, and publish.

Second level training is delivered in a similar fashion as the Basic level targeting users who edit program, department, or division level web pages that may involve higher maintenance i.e. updating of calendars, blogs, and uploading of mandated data and documents. Workshops for each level of training are offered 2-3 times a semester.

A series of online training videos, also produced by the college’s Instructional Technology staff, are easily available for the basic and second level users. The recordings provide video screen shots and audio narration that guides users through the step-by-step processes of certain tasks. The short 4-6 minute videos feature a small list of topics organized in an easy to follow format. The video-player window allows for pausing and repeating steps as needed.

Higher level or "super-users" are trained personally by the college’s webmaster or other trained super-users. These users manage areas of the college website or information that is institutional such as the Student Services Division pages Office of Institutional Research and Planning pages Accreditation pages instructional media file storage and streaming team, and Academic and Career Programs. To accommodate the college community’s schedule, flexible "Walk-in" training and support are available daily provided by the webmaster or trained super-users during work hours via face-to-face, phone, or email.

The three-tiered training programs are evaluated and improved on a regular basis. New and additional training programs are in the planning stage.

Student and Administration Support Staff (SASS)
Student and Administration Support Staff (SASS) Program is a peer-support and peer-led
technology training program sponsored by the Classified Senate of the college. SASS Program newly instituted in spring 2013 and began its monthly training in fall 2013 supporting many classified professionals. The primary goal of the program is to provide job-relevant technology training for classified professionals in the areas or tools that bring efficiency and effectiveness to their day-to-day job. SASS Program uses a peer-led training model where classified professionals who possess technological expertise in certain area conduct training for their colleagues. Training topics are discussed and selected among classified professionals who determine their training needs based on job requirements and process and procedural changes, as well as changes in software and other technical changes. Recently held training includes Microsoft Outlook and Cognos data access system which were held in the training room of the District’s IS building. One of the outcomes that SASS Program aims is to develop consistency in the use of technology across campus and existing common processes to be better streamlined. As the college faces fiscal challenges, some classified positions are required to be more flexible, shifting job direction and/or adding new responsibilities at times. To respond to such changes, SASS Program serves as a proactive approach to professional development for the classified professionals for technology.

B. Student Training

Student Portal Training
The college offers a series of technology training to its students—whether perspective, incoming, or continuing. During new student orientation and ongoing orientation sessions, all students are introduced and trained on the use of the MyWVC student portal; in addition there is a training video showing how to login to the Portal on the Admission’s homepage. The portal includes critical information and the access students need in order for them to successfully navigate their educational experiences at West Valley College. In addition, the student portal training is incorporated in the college’s award-winning New Student Convocation at the beginning of each fall semester. Students are well equipped with the navigation of the portal site that helps them be ready for their educational career at the college. In Counseling 012: Careers and Lifestyles and Counseling 018: Job Search Methods classes, students are introduced to the EUREKA system assisting them to become proficient in using the system for discovery and research. EUREKA particularly assists students in specific job search and research processes, as well as guiding them in self-assessment of personality type and skill set to discover potential career fields suited to their style. During the high school recruitment process, the college introduces the K16 Bridge Program to prospective students. The K16 Bridge Program combines online lessons and support (via an active portal) with in-person standards-based instruction. Prospective students learn how to use the K16 Bridge Program to access a variety of information such as college and career options. Using the K16 Bridge Program as part of the college’s outreach effort has resulted in focused connection between prospective students and their selection of majors at the college.

VII. District Network and Internet Infrastructure

WVMCCD’s Internet Service Provider is CENIC, the Corporation for Education Network Initiatives in California, a statewide collaboration of CSU and CCCCO. Quoting from CENIC’s “About” web page, “CENIC designs, implements, and operates CalREN, the California Research and Education Network, a high-bandwidth, high-capacity Internet network specially designed to
meet the unique requirements of these communities…” (http://www.cenic.org/page_id=11/)

Through CENIC, the District provides multiple CENIC backbone entry points to each college, plus leased circuits between the two college campuses to provide redundancy and fail-over protection. CENIC provides public-facing IP addresses that typically stop at the District’s firewall and “DMZ” protected areas. Within the District’s networks, Class-A locally-configured IP addresses provide intranet addressing. The major division in the network is instructional (“Academic”) and administrative. IP ranges are assigned to each of these network addressing subnets by college campus. Using network switches and routers within the intranet, systems with academic IP addresses are generally prevented from accessing administrative IP addresses, which administrative systems may access across the subnets into the instructional network. A third subnet is used for the District’s WiFi systems. Users on the WiFi network are essentially treated as a connection from an outside network; thus, WiFi connections only access intranet resources made available as public-facing, web-based applications.

**Network Access Control (NAC)**
Bradford Network Sentry provides complete visibility and control of all users and devices on WVMCCD’s network to prevent unauthorized access and keep the network secure. Network Sentry registers and authenticates all users and their associated devices, monitors their access and network usage, and dynamically provisions role-based policies to ensure that users access only the resources they need to access.

**Enterprise Anti-Virus System**
WVMCCD uses Symantec Protection Suite as its primary virus protection solution for all desktop and server systems district-wide.

**Messaging Gateway System**
WVMCCD uses Symantec Brightmail as its primary inbound and outbound messaging security system: with real-time anti-spam and anti-malware protection, content filtering, data loss prevention, and optional email encryption method.

**Firewall System**
WVMCCD uses Checkpoint Firewall. Checkpoint’s primary objective is to control the incoming and outgoing network traffic by analyzing the data packets and determining whether it should be allowed through or not, based on a predetermined rule set.

**Network Traffic Prioritization System**
Blue Coat PacketShaper prevents the unauthorized distribution of copyrighted material, and illegal applications being executed on the network. In addition, Blue Coat's packet shaping software will help deter the usage of illegal Point-to-Point software by controlling the bandwidth of both incoming and outbound services such as BitTorrent, Limewire and Gnutella, and re-prioritize the network traffic, giving higher priority to important content and restricting recreational downloads.

**Network Routing and Switching**
Within the last decade, funded by District Bond Measures H and C, District IS has replaced and restructured campus networks at both Mission and West Valley Colleges. Hewlett Packard ProCurve networking equipment replaced aging CISCO switches and routers, achieving
considerable savings in both acquisition and maintenance costs. With the network refresh, some of the network VLANs were reconfigured or re-implemented to provide greater network data control and to establish new services, such as data connections for audio-visual equipment that is now largely remotely managed.

There are two primary separations in the network: Administrative and Instructional. This was a typical network implementation in the 1980s, but seems outdated and limiting in current technology. The college has requested District IS to review the current structure.

**Telephony**

Historically, each campus has its own telephony system, with Nortel telephone switches installed on each campus, but switches of different vintages and configuration. More recently, the District has begun implementation of a ShoreTel phone system that replaces Nortel’s end-of-life equipment. ShoreTel is a Voice Over Internet Protocol (VOIP) implementation with features that tie telephone to network services, including voice messaging conveyed via e-mail and phone dialing from user’s Exchange-based contacts list. The implementation is phased, with ShoreTel being installed in all new and recently-constructed buildings, and Nortel being phased out of older buildings. The limiting factor in the implementation is having adequate network support in all areas, some of which in older buildings needs to be reinstalled and upgraded.

West Valley College ITS - District IS Roles and Responsibilities

College and District technology services are generally divided along administrative and instructional responsibilities, with the District’s role to support institutional-wide technology -- ERP, major systems, networking infrastructure, Internet Service Provider connectivity, and related supporting services. A “map” of these roles and responsibilities is provided in an appendix to this document.

College and District roles constantly evolve and adjust, responding to both changes in user-demanded services and to technological changes. Several college-based user groups interact with District IS to inform this evolution: DISPAC helps to guide overall District IS strategies on a monthly basis; a VP-IS group meets on a monthly basis, comprised of the Vice Presidents of Instruction, Student Services, and Administrative Services, plus key District IS staff members representing networking, application support, and major system support; and a Student Support-District IS team meets frequently to resolve key student-oriented services, including registration, financial aid, mandatory reporting elements, and similar operational needs.

**VIII. Appendices**

*Appendix 1: District IS and West Valley ITS Roles and Responsibilities Functional Map*
*Appendix 2: Instructional Technology Survey, Fall 2014*
*Appendix 3: Classroom Standard Configurations*
*Appendix 4: West Valley College Servers*
*Appendix 5: Instructional Computing Inventory, by room*
*Appendix 6: Instructional Software*