### IT Governance: Shared IT Infrastructure Advisory Committee (SIAC) UNIVERSITY of FLORIDA **Advisory Committee (SIAC)**



#### Chairman's Notes

Members Attending: Bailey, Cromer, Fitzpatrick (Chair), [John Welk proxy for] Frey, Kirmse, Lander, Mian, Olson

Others Attending: A. Carey (CNS), C. Benjamin, Burdette, Drew Harvey (CTS), Hester, Doug Johnson (AT), Madey, Dan Miller, Moffat, Sallot, Alex York (IFAS)

> 3:00 to 4:00 07/24/2012 **CSE 507**

1. Chairman's Notes – from June 26, 2012

ΑII

No changes

#### 2. Status Reports – Quick Updates

• Wi-Fi – UFW – going away on August 13

**Dan Miller** 

- Started NAC blocking on UF on July 16.
- Recent usage: 2300 new UF users, and 4000 still on UFW.
- o To accelerate user migration off UFW, we reduced the inactivity timeout to 5 minutes.
- 8,000 additional users may not be getting the message re the need to migrate off UFW.
- More aggressive measures are needed. Maybe impose a timeout for active users. Time-out after 2 hours starting next week, then fall back to 4 hours for Finals Week.
- Mian suggests sending emails directly to people still using the old UFW system. Note – migration reminders to all remaining UFW users are now going out daily.
- o Cromer suggests sending memo to DDD list (Deans, Directors, Department Chairs). Note – better to send a targeted daily reminder to all remaining UFW users.
- o Olson suggests that whatever is decided, "Don't back down" on the stated deadline. It's important to establish credibility in the community that "we mean what we say."
- UFVISITOR will be offered everywhere
  - This was originally planned for a very limited number of locations
  - Miller hopes they'll have this active on 8/13/2012, too, but that's a significant design-change, which may require more time to implement.
- **VDI** ---- Service Description Next Steps

**Drew Harvey** 

- o OA (Operations Analysis) now renamed CTS.
- o After conferring with other groups, Citrix selected as the UFIT standard for VDI.
- CTS now supports some departments using VMware View for VDI. CTS will continue to provide VMware View support to these units.
- o Not ready to take on any new customers yet. CTS is still in the testing phase for Citrix. And moving to maintenance mode for VMware View.
- Still sorting out roles and responsibilities. Who's going to do what?
- Fitzpatrick mentioned that CNS has received inquiries from departments wanting to know if CNS will host VDI services. CNS has been referring such inquires to CTS.

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- Kirmse asks when will the CTS-VDI service be available? Harvey hopes to have Citrix users up and running this calendar year. Definitely for units within central UFIT. And maybe some of their distributed VMware customers too, depending on how things go.
- o Cromer asks if specific service offerings and prices have been determined.
- o Harvey says not yet. Still in design. Goal is to make it less expensive than a desktop.
- **DAS** --- Service Description System Availability John Madey See PowerPoint deck (appendix to these notes)
  - o DAS = Distributed (Cellular Telephone) Antenna System.
  - o Ultimate goal is "every square inch on campus" has a minimum signal-strength (bars).
  - o Initial goal is to have DAS in the Ben Hill Griffin Stadium completed in time for the first football game of the season (9/1/2012).
  - DAS will be a 2-year rollout project. By this time next year it should be 70% done.
- **SCCM** Service Description System Availability

#### **Andrew Carey**

#### Andrew Carey is the CNS project lead for SCCM

- o SCCM = Microsoft System Center Configuration Manager.
- SCCM2012 was released in April with significant new functionality.
- CNS hosts the SSCM central service, and delegates SCCM control and use to local units.
  - The goal is to allow departments to configure SCCM settings as if they were running it themselves, but without having to actually own and operate servers.
- o "Proof-of-Concept" implementation has been completed with assistance from Dell.
- "SCCM Task Force" is a group of units at UF already using SCCM in their departments.
- o CNS/OSG is currently setting up TEST & PROD instances, both of which will be available (eventually) to UF departmental IT staff.
  - SCCM Task Force units to pilot in August.
  - General Availability is expected sometime in October or November.
  - SCCM Task Force will assist with the training of new units (Peer-Support).
- Olson asks: Does the implementation team anticipate making other MS System Center modules available in the future? Carey responds: yes – time and resources permitting.
- o Lander mentions that his unit is a member of the SCCM Task Force. The Task Force is working up local-specific documentation to help the on-boarding of new units.
- o Also talking about deploying Wake-on-LAN as an ancillary service.
- o Cromer suggests this could be a way for UF to replace McAfee (\$180K/yr) with Forefront (included in the UF Microsoft Campus Agreement).
  - Kirmse suggests bringing Rob Adams into that discussion. Fitzpatrick will do that.
  - Carey says that currently there is no Forefront client for Macs. But expects there to be one before end of calendar year 2012.

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#### 3. Big-Blue-Button

**Doug Johnson** 

#### Handout/spreadsheet: Product Comparison Budget (appendix to these notes)

- Service Description
  - This is about selecting a UF-wide standard product for synchronous communication for teaching and learning via a live-synchronous environment, including: video, audio, phone-only, breakout sessions, and virtual classrooms.
- Vendor/Product Selection
  - Faculty committee reviewed options, and recommended BBB.
  - Adobe Connect is a feature-rich offering, but perceived as more expensive.
  - Pricing now appears to be 'a wash' once you consider 4-year cost (see spreadsheet).
  - BBB vendor quote focuses on the service itself, and ignores efficiencies on the HW/SW.
  - Adobe Connect supports more connections/server (2x+). Johnson's group worked up 4-year cost to try to get a true TCO comparison.
  - o Committee now recommends Adobe. Prices are close. Adobe has more features.
  - o Cromer says the original committee liked BBB because it is Open Source (no license fee), so it was presumed to be cheaper. But they liked the Adobe feature-set better.
  - o Johnson's committee based their TCO costs on 2,000 concurrent users based on their experience with Elluminate, which is probably not representative of the whole campus. Whole campus use will almost certainly be more, but both products (BBB & Adobe) should scale similarly, making the price comparison still valid.
  - Adobe should be able to integrate w/Sakai. Other schools have done this.
- System Availability
  - o Initial availability will be early in the fall, if all goes well.

#### 4. End-User Storage On-Demand

**Iain Moffat** 

- Service Description
  - Similar to "Box.net" service provided via Internet 2.
- Vendor/Product Selection
  - Researched several offerings
    - Many required big minimum-annual subscription fees.
  - Wanted something that would let us start small and pay as we grow.
  - Funding recently approved for a locally hosted pilot project.
- Pilot Project
  - Planned quota of 6-8 GB per user (depending on cost-points and usage levels).
  - o Supports multiple cross-platform clients (Windows, Mac, IOS, Android, Linux).
  - Auto-sync across devices/platforms, (so a user always has their files with them).

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- o CNS will partner with Warrington College of Business Administration.
- OSG will add a special software layer to their Storage Hosting Service. Otherwise, the standard hardware infrastructure will be used.
- o Part of pilot is to determine if an in-house solution has adequate feature/function mix, and if quotas can control costs.
- Initial "target market" is end users. Will look at services for departments later.
- Eldayrie thinks this should be funded off-the-top. May need quotas to limit demand.
- System Availability
  - Sometime this fall.

#### 5. Wall-Plate Refresh – policy question from Dan Cromer

- o Q: The Wall-Plate network refresh and upgrade will be coming soon to an IFAS building. I have been told that any port that has not been used in the last 6 months or more, will not be replaced. I understand the interest in saving money during the equipment refresh. But it doesn't seem fair, if the department must pay later, to add ports back.
- Response from Fitzpatrick and Todd Hester (Manager, CNS Wall-Plate group)
  - Wall-Plate project (over the last 5 years) has been deploying 100 Mbps ports.
  - New Wall-Plate Standard will be 1 Gbps to the desktop. This is more expensive.
  - We are now measuring active port utilization as a basis for refreshing switches.
  - If a port has had no activity for previous 6 months, it will be declared 'inactive', and therefore not included in refresh port count.
  - Cromer asks what if faculty away on sabbatical return and find they need a port that's been deactivated in their absence?
  - Hester replies that CNS will no longer be charging for port expansion. So if you call up and ask for it, we will add it at no cost to you.
    - If you know someone is coming back, tell us, and we'll leave it hot.
    - Fitzpatrick recognized that there has always been good faith on both sides, which allows this policy to work.
  - Hester reminds us that the previous discussion pertains to "refresh" work. For the last of the original Wall-Plate deployments: "We'll replace what you have today".
- 6. Next Meeting the 4<sup>th</sup> Tuesday from 3:00pm to 4:00pm August 28 at CSE 507

#### **Additional Information:**

- UF IT Governance Home: http://www.it.ufl.edu/governance/
- Shared Infrastructure Advisory Committee (SIAC) website: https://connect.ufl.edu/it/SIAC/

### University of Florida Neutral-Host Distributed Antenna System (DAS) SIAC Update

Prepared By: University of Florida

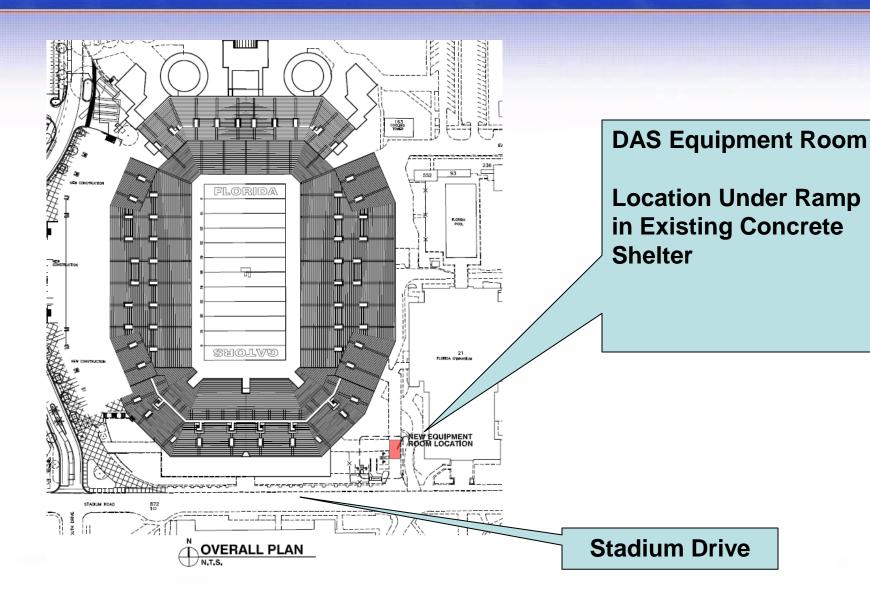
Information Technology
John Madey

July 24, 2012

### **DAS Project Status**

- Ben Hill Griffin Stadium Installation in Progress
  - Schedule Completion.....September 1, 2012
- AHC / Shands DAS Design in Progress
  - Headend Room Identified
  - Installation start Sep/Oct 2012
- Main Campus Buildings Scheduling RF Baseline Measurements for Initial Buildings
  - Identify Headend Room Location(s)
  - Design complete by November 2012

### **DAS Equipment Room Site**



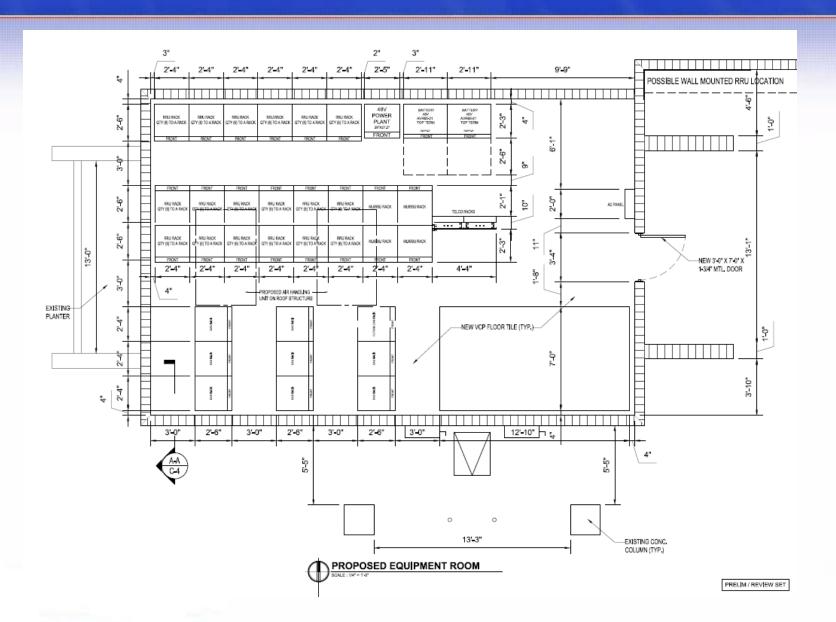
## **DAS Equipment Room**



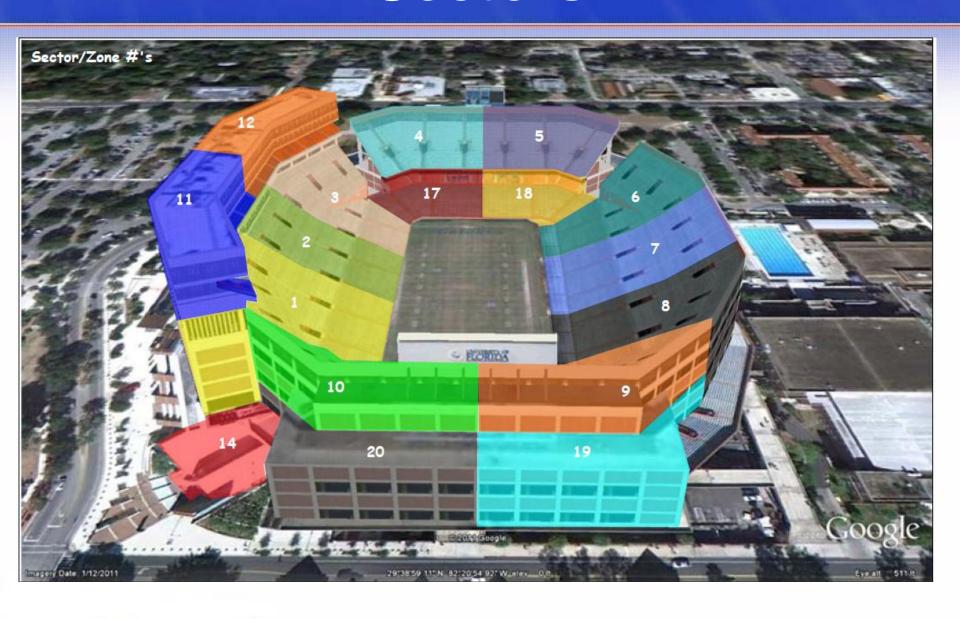


Before In Progress

### **DAS Equipment Room**



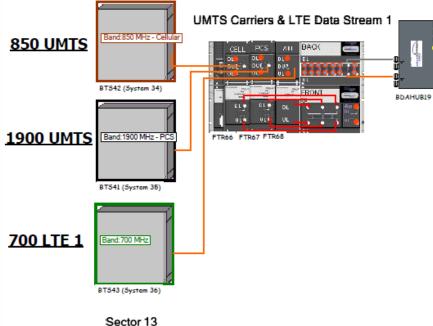
## Sectors

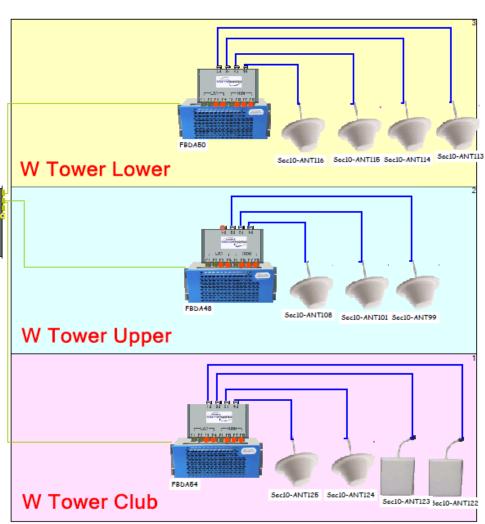


## **DAS Design**

#### Sector 13

2- 850 Carriers and 2- 1900 Carriers to be combined with CCI Tray





### **Stadium Status**

#### Stadium:

- Antennas; Suites & Offices = 160
- Antennas; Bowl Area = 110
- Total Antennas= 280
- 45% Installed
- Field Construction Complete: 3 weeks
- On Air for September 1......
  - Tweaking will be required.
  - Add Emergency Responder Freq. by Game 2

### Antennas

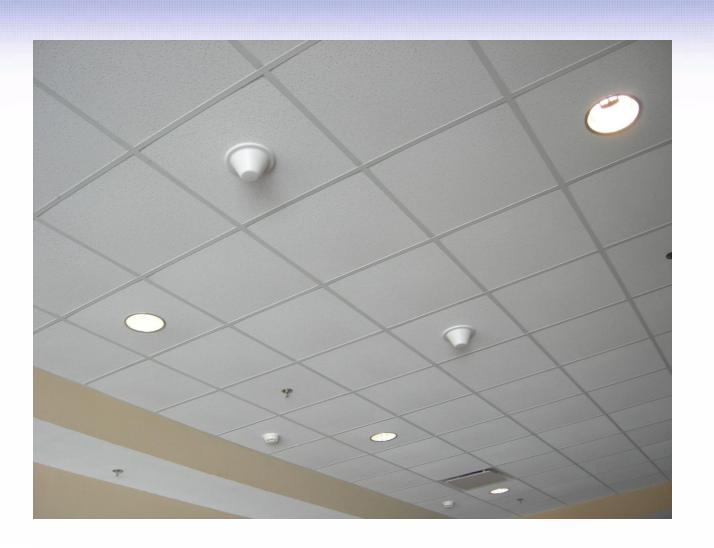
# Stealth Boxes to be installed in 40 Gate Locations



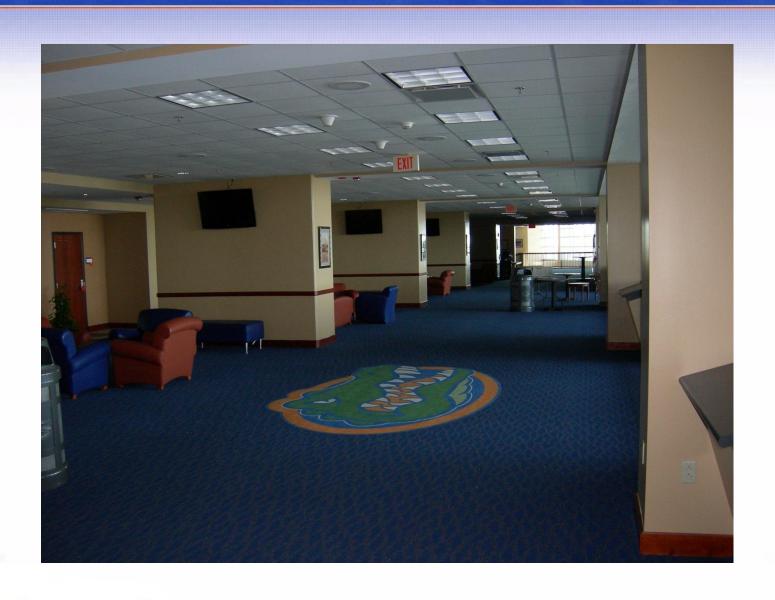


Before Mock-up

## **Typical Indoor Antennas**



## **Typical Indoor Antennas**



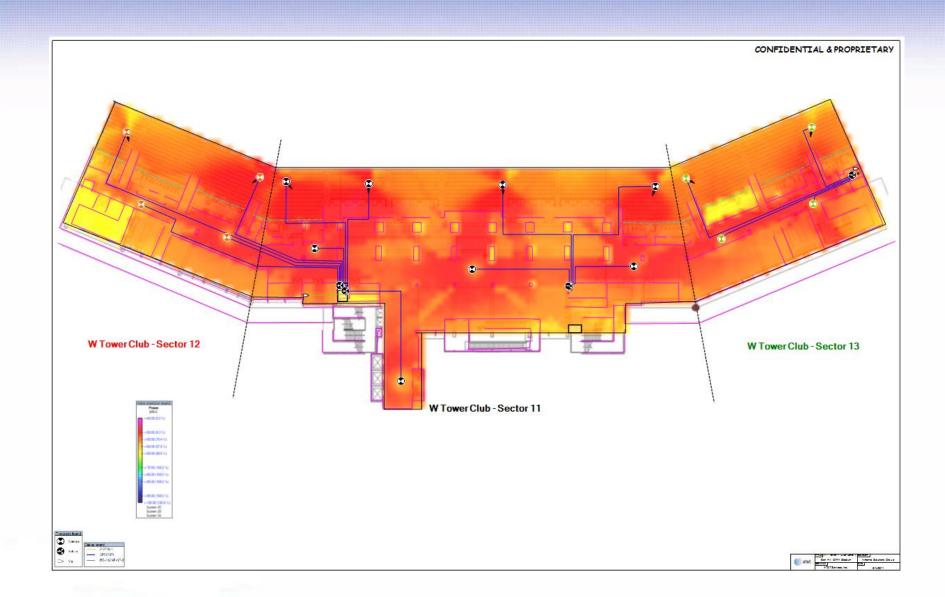
### **Campus Next Steps**

- Initial Target Building List Covers:
  - 32 Buildings
    - Anticipate this to grow during design....
  - 3.6 Million Sq. Ft.
- RF Baseline Readings
- Identify Headend Room(s)
- Fiber / Conduit Pathway & TR Facilities
- Complete Design By November 1

### AHC / Shands

- Coverage to all buildings planned
- New Macro Site on Shands South Tower
- DAS Design Completed
- Start Construction in September

# **Stay Tuned**



#### Start-up and 4-Year Life Cycle costs for a Campus-Wide Synchronous Communication Service Start-up 4-Year Adobe Connect \$453,153 \$1,868,964 **Vendor Hosted** Big Blue Button \$1,162,764 \$285,153 **Locally Hosted Adobe Connect** \$332,653 \$1,084,255 Big Blue Button<sup>1</sup> \$497,003 \$1,220,250

<sup>1</sup> This is an extremely conservative, worst-case estimate based on the assumption that connections per server will not scale. This is not accurate; but we have no data to estimate scaling.

| Adobe Connect                         |                             |      |                | ocal Ser       |           |                |  |
|---------------------------------------|-----------------------------|------|----------------|----------------|-----------|----------------|--|
|                                       | Item                        | #    | Cost           | Total          | Recurring | 4-Year Cost    | Comments   |
| Category<br>Hardware <sup>1</sup>     |                             |      |                |                |           |                | Comments   |
| nardware                              | App Servers                 | 4    | \$11,200       | \$44,800       | \$0<br>©0 | \$44,800       |  |
|                                       | DB Servers                  | 2    | \$11,200       | \$22,400       | \$0       | \$22,400       |  |
|                                       | Storage                     | 0    | <b>#44.000</b> | <b>COO</b> 400 | ΦO        | <b>COO</b> 400 | EDOE 0   |
|                                       | Other hardware              | 2    | \$11,200       | \$22,400       | \$0       | \$22,400       | EDGE Servers   |
| Software Licensing                    | Connect Licenses            | 1    | \$50,000       | \$50,000       | \$52,500  | \$207,500      | 2000 users + 4 server licenses                         |
| _                                     |                             |      |                |                |           |                |  |
| Personnel <sup>2</sup>                | Server Support              | 0.5  | \$79,800       | \$39,900       | \$41,097  | \$163,191      | Needed primarily during initial setup and testing      |
|                                       | Integration Programmer      | 0.25 | \$79,800       | \$19,950       | \$20,549  | \$81,596       | Connecting to Sakai and other local services           |
|                                       | User Support/Training       | 1    | \$63,840       | \$63,840       | \$65,755  | \$261,106      | User support and training                              |
|                                       | Help Desk OPS/Student       | 2.5  | \$9,630        | \$24,075       | \$24,797  | \$98,467       | Front line user support and optional .5 software licer |
|                                       | Load Testing Support        | 0.25 | \$73,150       | \$18,288       | \$18,836  | \$74,796       |  |
|                                       | Other Staff                 |      |                |                |           |                |  |
| Ancillary services                    | Vendor services             | 0    | \$0            | \$0            | \$0       | \$0            |  |
| ·                                     | Adobe Connect seminar rooms | 1    | \$27,000       | \$27,000       | \$27,000  | \$108,000      |  |
| Service Scaling                       | License scaling             | 0    | \$15,000       | \$0            | \$0       | \$0            | 500 user pack + server licenses                        |
|                                       | G                           | 0    | \$20,000       | \$0            | \$0       | \$0            | 1000 user pack + 2 server licenses                     |
|                                       | Hardware                    |      | \$11,200       |                | \$0       |                | 1 - server per 500 additional concurrent sessions      |
|                                       |                             |      | Totals:        | \$332,653      | \$250,534 | \$1,084,255    | These figures need to scale with growth in use         |
| <sup>1</sup> 4-year refresh cycle for | hardware                    |      |                |                |           | \$252,791      |  |

<sup>&</sup>lt;sup>2</sup> See Salary Model at bottom of page

<sup>&</sup>lt;sup>3</sup> This is a package of 4x200 seat seminar rooms, 1x400 seat, and 1x600 seat. Rooms will be purchased and shceduled on demand.

| Category               | Item                        | #    | Cost     | Total     | Recurring | 4-Year Cost | Comments   |
|------------------------|-----------------------------|------|----------|-----------|-----------|-------------|--|
| Hardware <sup>1</sup>  | App Servers                 | 20   | \$11,200 | \$224,000 | \$0       | \$224,000   | Very conservative estimate; actual costs will be signific  |
|                        | DB Servers                  | 0    | \$0      | \$0       | \$0       | \$0         | BBB DB runs on the same hardware as application tier       |
|                        | Storage                     |      |          |           |           |             |  |
|                        | Other hardware              |      |          |           |           |             |  |
| Software Licensing     | BBB License                 | 0    | \$0      | \$0       | \$0       |             | Open source software: No license                           |
| Personnel <sup>2</sup> | Server Support              | 0.5  | \$79,800 | \$39,900  | \$41,097  | \$163,191   | Needed primarily during initial setup and testing          |
|                        | Integration Programmer      | 0.5  | \$79,800 | \$39,900  | \$41,097  | \$163,191   | Connecting to Sakai, other services, plus programmin       |
|                        | User Support/Training       | 1    | \$63,840 | \$63,840  | \$65,755  | \$261,106   | User support and training                                  |
|                        | Help Desk OPS/Student       | 2.5  | \$9,630  | \$24,075  | \$24,797  | \$98,467    | Front line user support and optional .5 software licensing |
|                        | Load Testing Support        | 0.25 | \$73,150 | \$18,288  | \$18,836  | \$74,796    |  |
|                        | Other Staff                 |      |          |           |           |             |  |
| Ancillary services     | Blindside Networks          | 1    | \$60,000 | \$60,000  | \$22,500  | \$127,500   | \$60 year 1, \$45k year 2; \$30k year 3; \$15k year 4      |
|                        | Adobe Connect seminar rooms | 1    | \$27,000 | \$27,000  | \$27,000  | \$108,000   |  |
| Service Scaling        | License scaling             | 0    | \$0      | \$0       | \$0       | \$0         |  |
| •                      | Hardware                    |      | \$11,200 |           | \$0       |             | 1 - server per 100 additional concurrent sessions          |
|                        |                             |      | Totals:  | \$497,003 | \$241,083 | \$1,220,250 | These figures need to scale with growth in use             |

<sup>&</sup>lt;sup>1</sup> 4-year refresh cycle for hardware

<sup>&</sup>lt;sup>3</sup> This is a package of 4x200 seat seminar rooms, 1x400 seat, and 1x600 seat. Rooms will be purchased and shceduled on demand.

| Salary Model          | Salary   | Benefits | Total    |   |
|-----------------------|----------|----------|----------|---|
| SysAdmin/DBA          | \$60,000 | 0.33     | \$79,800 |   |
| Programmer            | \$53,000 | 0.33     | \$70,490 |   |
| User Support/Training | \$48,000 | 0.33     | \$63,840 |   |
| Load Testing Support  | \$55,000 | 0.33     | \$73,150 |   |
| Help Desk OPS/Student | \$18,720 | 0        | \$18,720 | \$9/hr x 40 hrs/pay period x 26 pay periods per FTE |

<sup>&</sup>lt;sup>2</sup> See Salary Model at bottom of page

| Hosted Service                        |  |           |              |               |               |               |  |
|---------------------------------------|--|-----------|--------------|---------------|---------------|---------------|--|
| Adobe Connect                         |  |           |              |               |               |               |  |
| Category                              | Item                                     | #         | Cost         | Total         | Recurring     | 4-Year Cost   | Comments   |
| Hardware <sup>1</sup>                 | App Servers                              | 0         | \$0          | \$0           | \$0           | \$0           | Hardware included in the services costs                    |
|                                       | DB Servers                               | 0         | \$0          | \$0           | \$0           | \$0           |  |
|                                       | Storage                                  | 0         | \$0          | \$0           | \$0           | \$0           |  |
|                                       | Other hardware                           | 0         | \$0          | \$0           | \$0           | \$0           |  |
| Software Licensing                    | Connect Licenses                         | 1         | \$300,000    | \$300,000     | \$315,000     | \$1,245,000   | Includes hardware, support services, etc.                  |
| Personnel <sup>2</sup>                | Server Support                           | 0         | \$79,800     | \$0           | \$0           | \$0           | Needed primarily during initial setup and testing          |
|                                       | Integration Programmer                   | 0.25      | \$79,800     | \$19,950      | \$20,549      | \$81,596      | Connecting to Sakai and other local services               |
|                                       | User Support/Training                    | 1         | \$63,840     | \$63,840      | \$65,755      | \$261,106     | User support and training                                  |
|                                       | Help Desk OPS/Student                    | 2.5       | \$9,630      | \$24,075      | \$24,797      | \$98,467      | Front line user support and optional .5 software licensing |
|                                       | Load Testing Support                     | 0.25      | \$73,150     | \$18,288      | \$18,836      | \$74,796      |  |
|                                       | Other Staff                              |           |              |               |               | \$0           |  |
| Ancillary services                    | Adobe Services                           | 1         | \$0          | \$0           | \$0           | \$0           | Covered in license cost                                    |
|                                       | Adobe Connect seminar rooms <sup>3</sup> | 1         | \$27,000     | \$27,000      | \$27,000      | \$108,000     |  |
| Service Scaling                       | License scaling                          |           |              |               |               |               | Unknown  |
| -                                     | •  |           |              |               |               |               |  |
|                                       |  |           | Totals:      | \$453,153     | \$471,937     | \$1,868,964   | These figures need to scale with growth in use             |
| <sup>1</sup> 4-year refresh cycle for | hardware                                 |           |              |               |               | \$1,037,500   |  |
| <sup>2</sup> See Salary Model at bo   |  |           |              |               |               |               |  |
| ,                                     | 200 seat seminar rooms, 1x400 seat, an   | d 1x600 s | eat Rooms    | will be purcl | hased and sho | eduled on dem | and  |
| This is a package of 4x               | 200 Jour Jenniai 100m3, 1x+00 Seat, an   | G 17000 3 | out. Modilis | wiii be pulci | nasea ana sn  | \$784,709     | Extra Cost of Out-Sourced Servers and Storage              |

|  | #   | Cost   | Total  | Recurring   | 4-Year Cost  | Comments  |
|--|---|--|--|---|--|---|
| App Servers                              | 20  | \$3,600  | \$72,000   | \$75,600  | \$298,800  |   |
| DB Servers                               | 0   | \$0  | \$0  | \$0   | \$0  | BBB DB runs on the same hardware as application tier  |
| Storage                                  |   |  |  |   |  |   |
| Other hardware                           |   |  |  |   |  |   |
| BBB License                              | 0   | \$0  | \$0  | \$0   | \$0  | Open source software  |
| Server Support                           | 0   | \$79,800   | \$0  | \$0   | \$0  | Needed primarily during initial setup and testing   |
| Integration Programmer                   | 0.25  | \$79,800   | \$19,950   | \$20,549  | \$81,596   | BBB is an Open Source product   |
| User Support/Training                    | 1   | \$63,840   | \$63,840   | \$65,755  | \$261,106  | User support and training   |
| Help Desk OPS/Student                    | 2.5   | \$9,630  | \$24,075   | \$24,797  | \$98,467   | Front line user support and optional .5 software licensing  |
| Load Testing Support                     | 0.25  | \$73,150   | \$18,288   | \$18,836  | \$74,796   |   |
| Other Staff                              |   |  |  |   |  |   |
| Blindside Networks                       | 1   | \$60,000   | \$60,000   | \$60,000  | \$240,000  | This may decrease in years 2+ as we pick up services  |
| Adobe Connect seminar rooms <sup>3</sup> | 1   | \$27,000   | \$27,000   | \$27,000  | \$108,000  |   |
| License scaling                          | 0   | \$0  | \$0  | \$0   | \$0  |   |
| · ·                                      |   | \$3,600  |  |   | \$14,400   | 1 - server per 100 additional concurrent sessions   |
|  | DB Servers Storage Other hardware  BBB License  Server Support Integration Programmer User Support/Training Help Desk OPS/Student Load Testing Support Other Staff  Blindside Networks Adobe Connect seminar rooms <sup>3</sup> | DB Servers Storage Other hardware  BBB License  0  Server Support Integration Programmer User Support/Training Help Desk OPS/Student Load Testing Support Other Staff  Blindside Networks Adobe Connect seminar rooms <sup>3</sup> 1 | DB Servers         0         \$0           Storage         Other hardware         0         \$0           BBB License         0         \$0           Server Support         0         \$79,800           Integration Programmer         0.25         \$79,800           User Support/Training         1         \$63,840           Help Desk OPS/Student         2.5         \$9,630           Load Testing Support         0.25         \$73,150           Other Staff           Blindside Networks         1         \$60,000           Adobe Connect seminar rooms³         1         \$27,000           License scaling         0         \$0 | DB Servers         0         \$0         \$0           Storage         Other hardware         0         \$0         \$0           BBB License         0         \$0         \$0           Server Support         0         \$79,800         \$19,950           Integration Programmer         0.25         \$79,800         \$19,950           User Support/Training         1         \$63,840         \$63,840           Help Desk OPS/Student         2.5         \$9,630         \$24,075           Load Testing Support         0.25         \$73,150         \$18,288           Other Staff           Blindside Networks         1         \$60,000         \$60,000           Adobe Connect seminar rooms³         1         \$27,000         \$27,000           License scaling         0         \$0         \$0 | DB Servers         0         \$0         \$0         \$0           Storage         Other hardware         0         \$0         \$0         \$0           BBB License         0         \$0         \$0         \$0           Server Support         0         \$79,800         \$0         \$0           Integration Programmer         0.25         \$79,800         \$19,950         \$20,549           User Support/Training         1         \$63,840         \$63,840         \$65,755           Help Desk OPS/Student         2.5         \$9,630         \$24,075         \$24,797           Load Testing Support         0.25         \$73,150         \$18,288         \$18,836           Other Staff           Blindside Networks         1         \$60,000         \$60,000         \$60,000           Adobe Connect seminar rooms³         1         \$27,000         \$27,000         \$27,000           License scaling         0         \$0         \$0         \$0 | DB Servers         0         \$0         \$0         \$0         \$0           Storage         Other hardware         0         \$0         \$0         \$0         \$0           BBB License         0         \$0         \$0         \$0         \$0           Server Support         0         \$79,800         \$0         \$0         \$0           Integration Programmer         0.25         \$79,800         \$19,950         \$20,549         \$81,596           User Support/Training         1         \$63,840         \$63,840         \$65,755         \$261,106           Help Desk OPS/Student         2.5         \$9,630         \$24,075         \$24,797         \$98,467           Load Testing Support         0.25         \$73,150         \$18,288         \$18,836         \$74,796           Other Staff         3         \$60,000         \$60,000         \$60,000         \$240,000           Adobe Connect seminar rooms <sup>3</sup> 1         \$27,000         \$27,000         \$108,000           License scaling         0         \$0         \$0         \$0         \$0 |

<sup>&</sup>lt;sup>1</sup> 4-year refresh cycle for hardware<sup>2</sup> See Salary Model at bottom of page

<sup>&</sup>lt;sup>3</sup> This is a package of 4x200 seat seminar rooms, 1x400 seat, and 1x600 seat. Rooms will be purchased and shceduled on demand.