ITS Executive Steering Committee (ITESC)

Agenda and Materials – May 04, 2017

Agenda

Business Intelligence
- T. Vavarutsos, K. Smith

Summer Project: 10Gb Connectivity/NGFW
- D. Vonder Heide, J. Sibenaller

Academic Year 2017-18 Project: Box to OneDrive
- D. Vonder Heide

Information Security Training
- J. Sibenaller

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Business Intelligence (BI) Progress

Business Intelligence Team: bi-team@luc.edu
Tony Vavarutsos – avavarutsos@luc.edu

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BI Progress

Definition

Business Intelligence (BI) are the set of strategies, processes, applications, data, products, technologies and technical architectures which are used to support the collection, analysis, presentation and dissemination of information. BI technologies provide historical, current and predictive views of operations.

The goal is to allow for the easy interpretation of these data.

- *Wikipedia*

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BI Progress

Purpose of presentation

- Quick review of *Business Intelligence (BI)* evolution and use at LUC

- Show LUC demos

- See what other schools are doing

- Share cost effectiveness of BI solutions
  - What started at $2,000/user down to $30/user per year

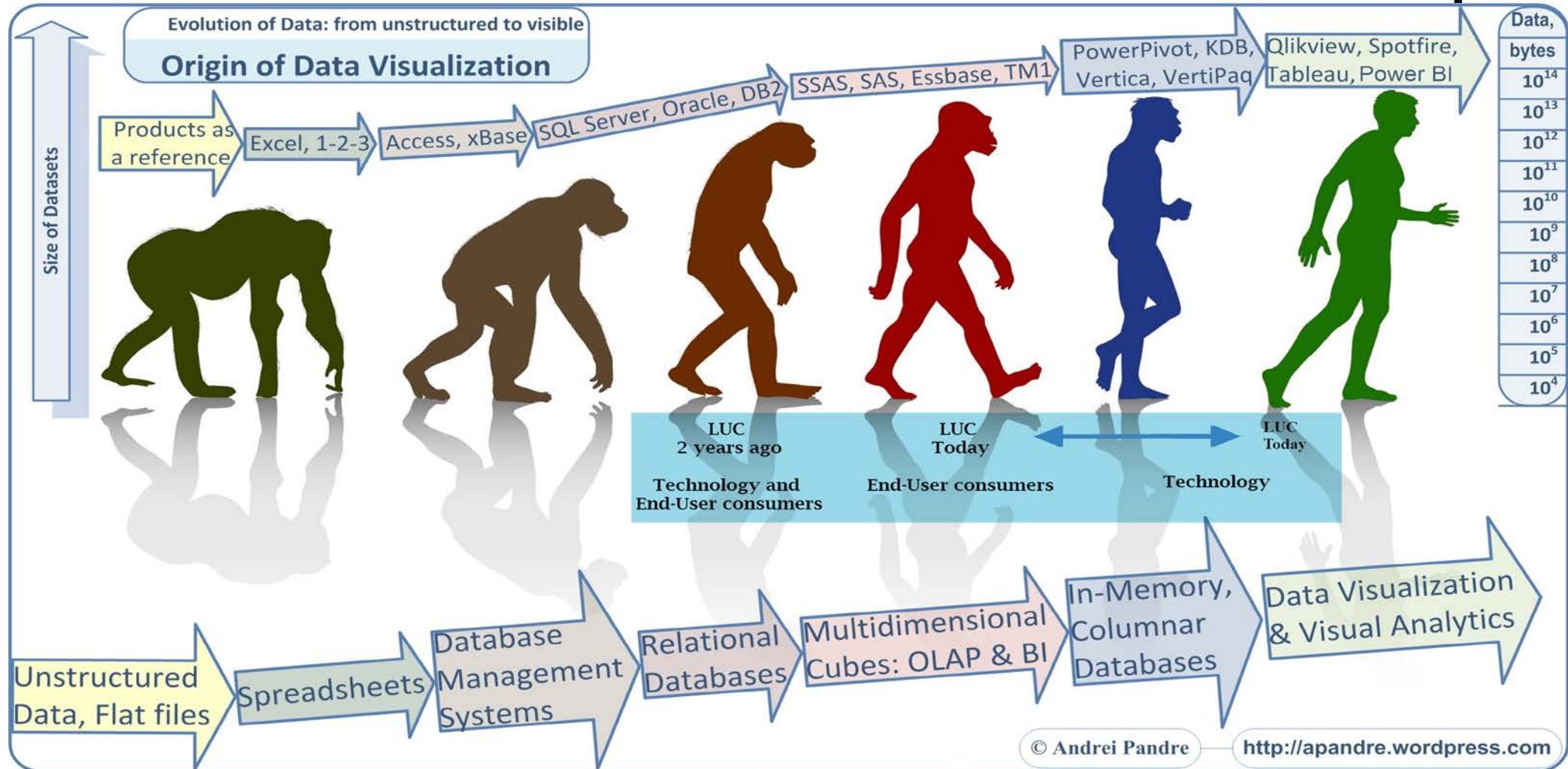- GOAL: Increase comfort and expand access to web facing dashboards and other visualizations of LUC data

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BI Progress

Business Intelligence technologies over time
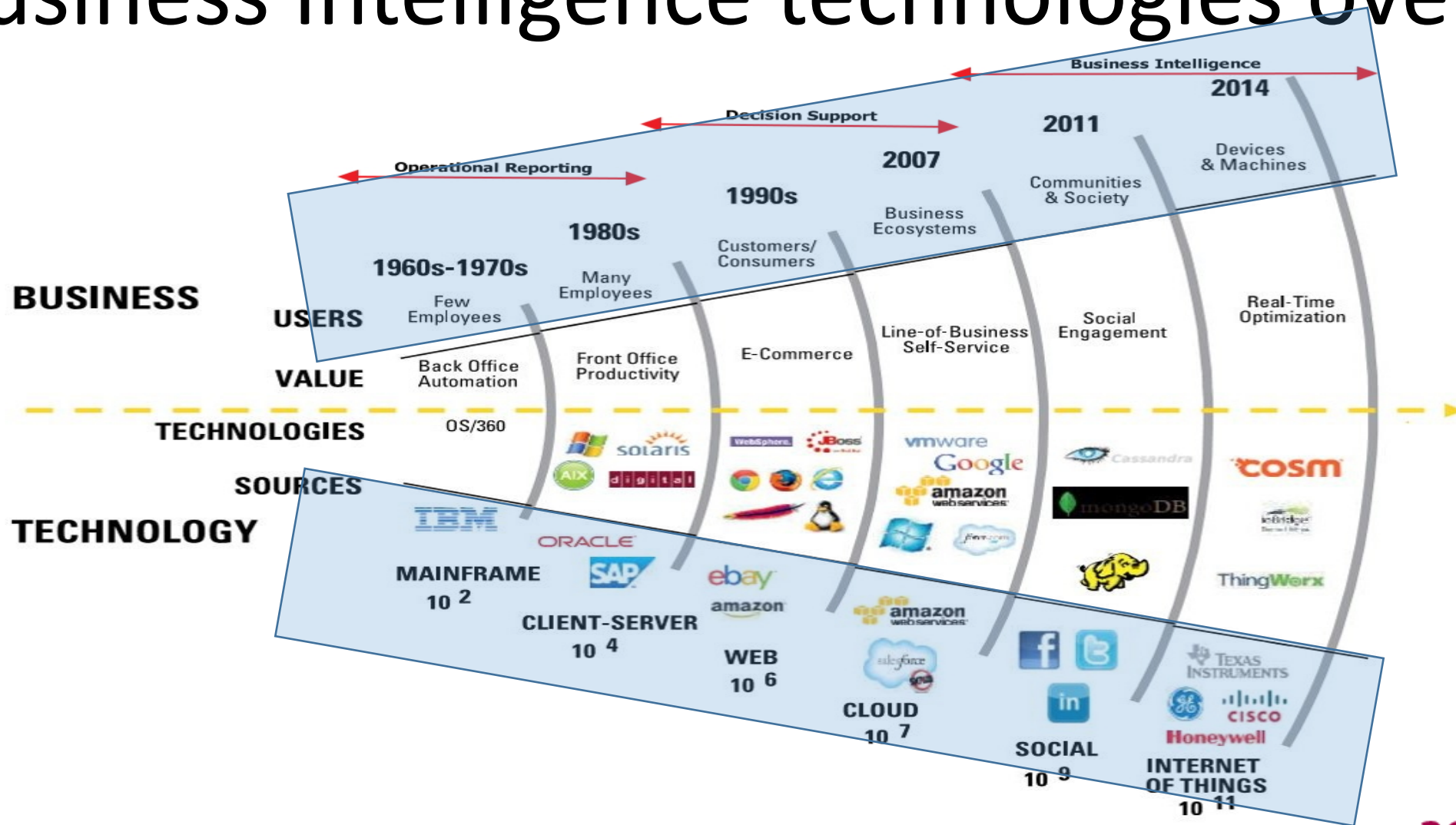
BI Evolution: Data Visualization – LUC specific

BI Progress
Data Visualization: Gartner Magic Quadrant (MQ)

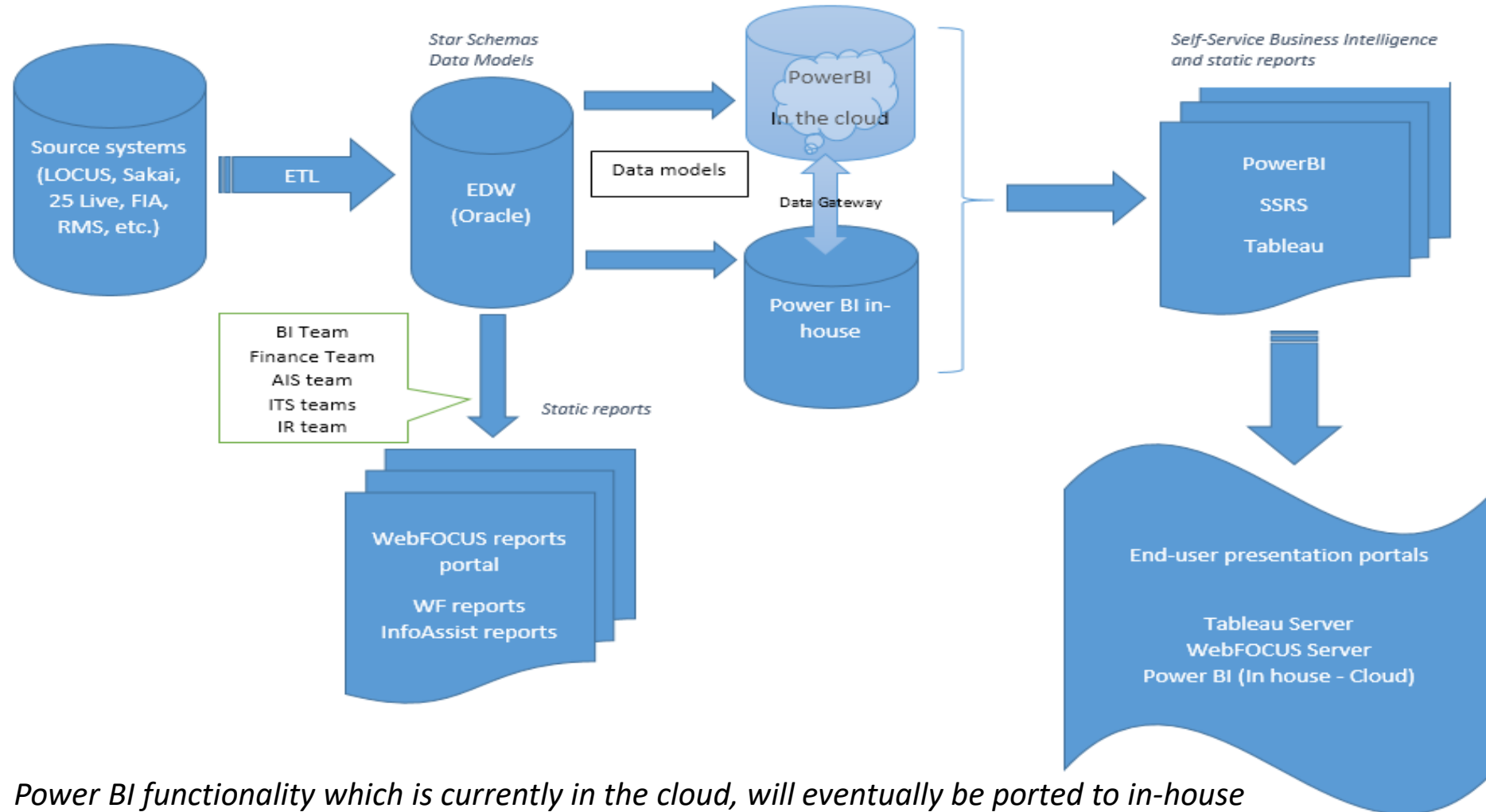Figure 1. Magic Quadrant for Business Intelligence and Analytics Platforms

Gartner Business Intelligence and Analytic Platforms Magic Quadrant for 2017
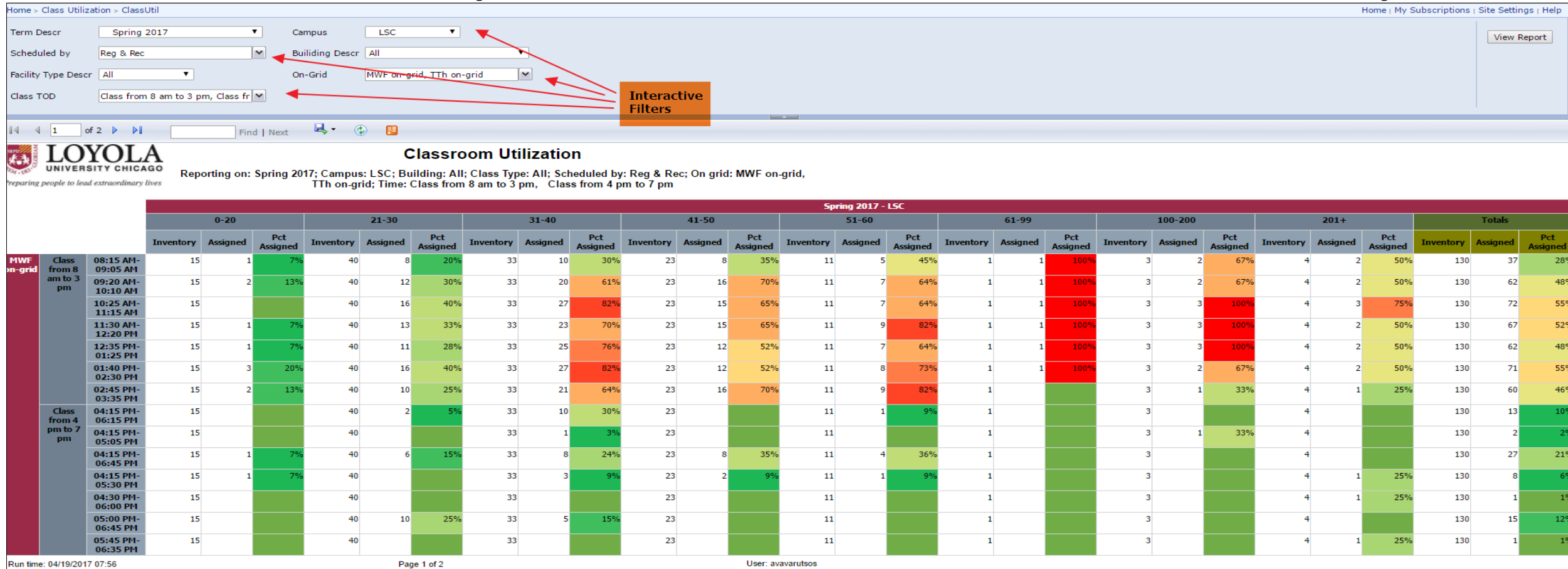
BI Progress

LUC – Current BI environment

Star Schemas Data Models

Source systems (LOCUS, Sakai, 25 Live, FIA, RMS, etc.) → ETL → EDW (Oracle)

Data models

PowerBI In the cloud

Data Gateway

Power BI in-house

Self-Service Business Intelligence and static reports

PowerBI
SSRS
Tableau

BI Team
Finance Team
AIS team
ITS teams
IR team

Static reports

WebFOCUS reports portal
WF reports
InfoAssist reports

End-user presentation portals

Tableau Server
WebFOCUS Server
Power BI (In house - Cloud)

Power BI functionality which is currently in the cloud, will eventually be ported to in-house

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BI Progress

Use Cases at LUC

- Classroom Utilization
- Student Profile
- Alumni Giving Based on Geography
- Sakai

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BI Progress

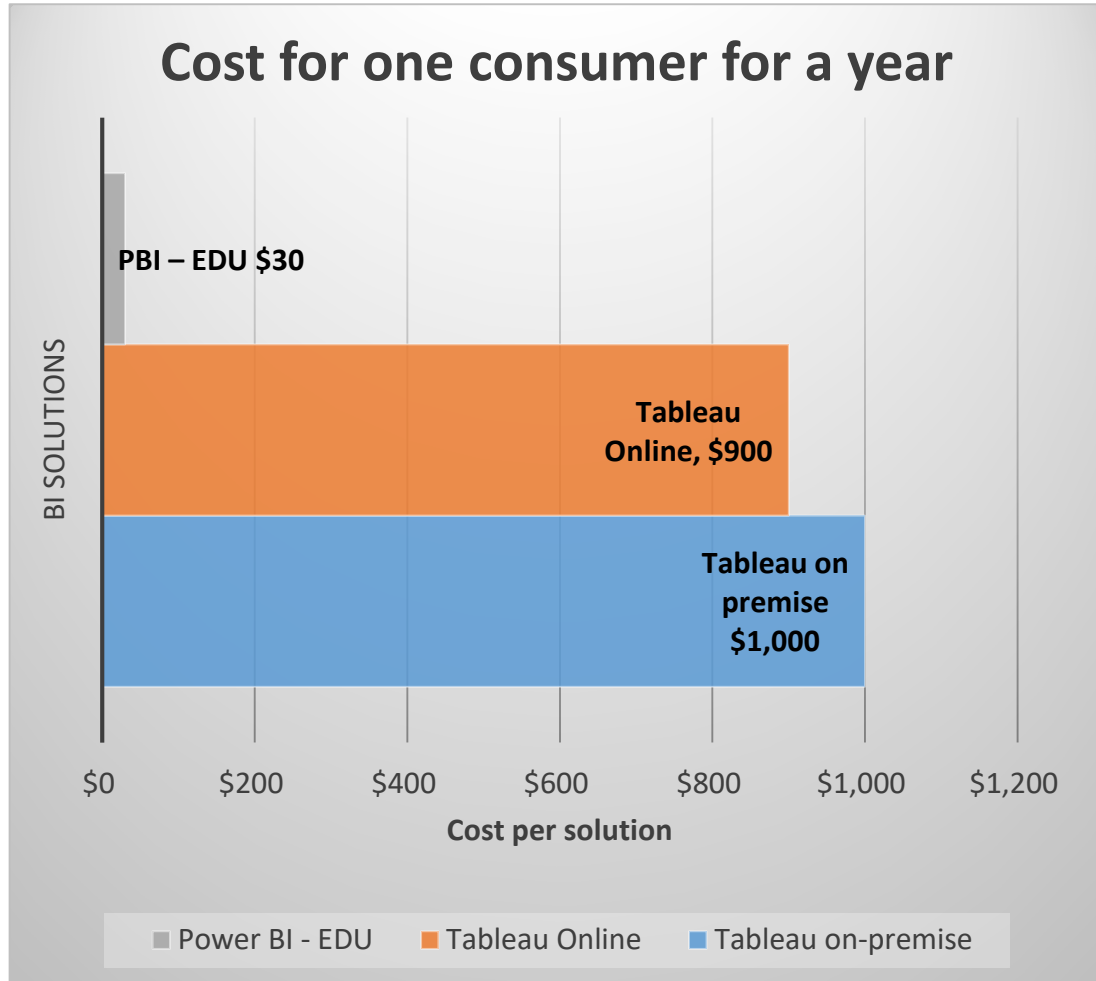# LUC BI Example: – Classroom Utilization Report

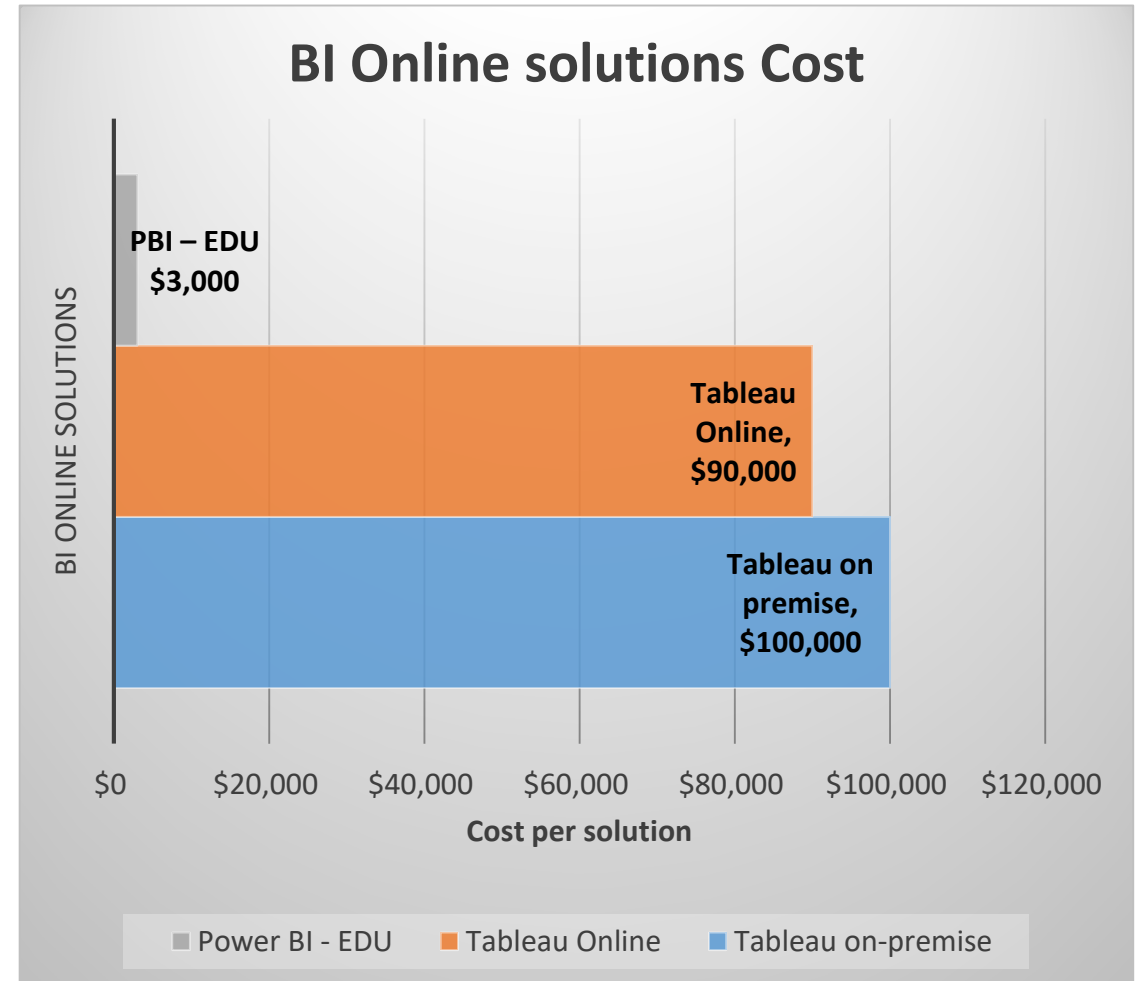Power BI (On Premise) - **consumer perspective** – Classroom Utilization Matrix

BI Progress

LIVE DEMOS

- Student Profile
- Alumni Giving Based on Geography
- Sakai

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BI Progress

BI solutions cost for one user per year

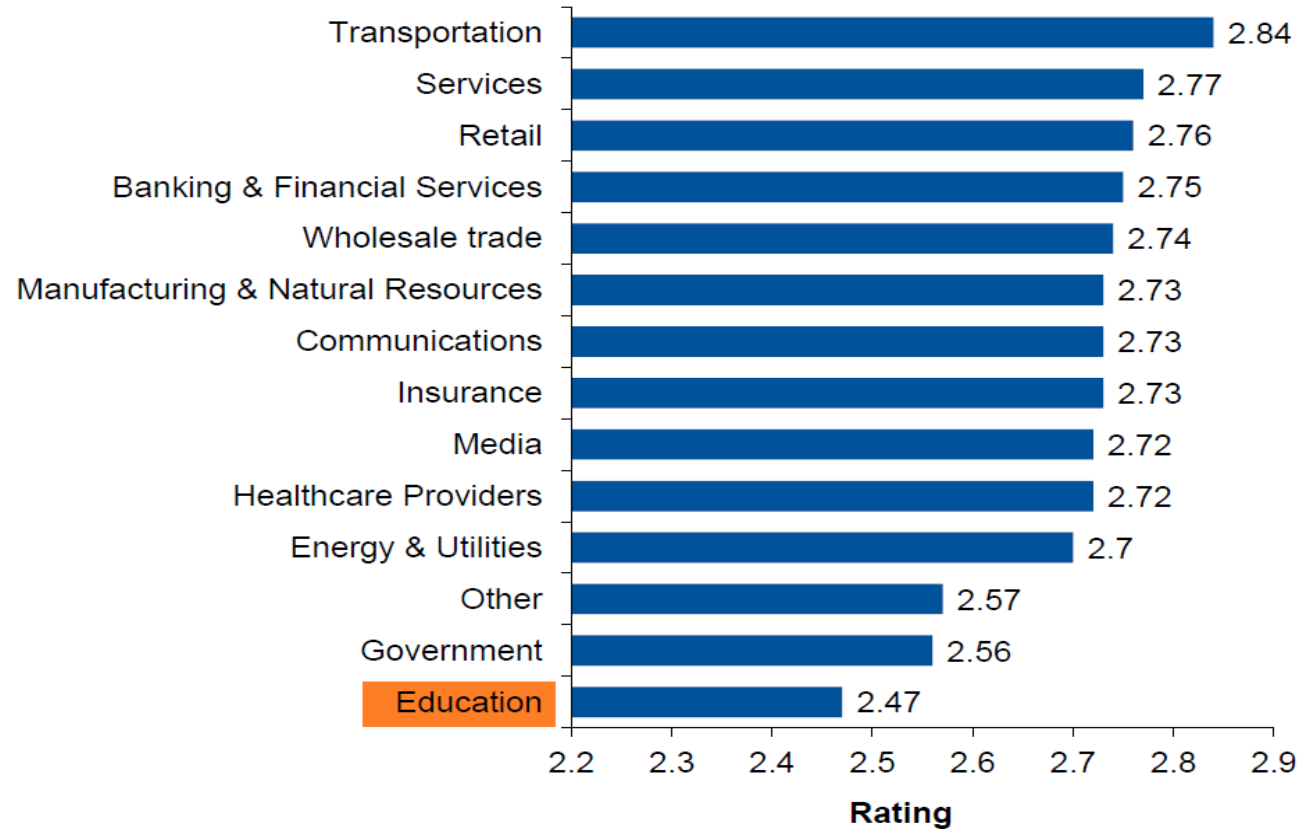BI solutions *initial* cost for 100 end-users (consumers)

Cost for one consumer for a year

PBI – EDU $30

Tableau Online, $900

Tableau on premise $1,000

BI SOLUTIONS

Cost per solution

$0 $200 $400 $600 $800 $1,000 $1,200

■ Power BI - EDU ■ Tableau Online ■ Tableau on-premise

BI Online solutions Cost

PBI – EDU $3,000

Tableau Online, $90,000

Tableau on premise, $100,000

BI ONLINE SOLUTIONS

Cost per solution

$0 $20,000 $40,000 $60,000 $80,000 $100,000 $120,000

■ Power BI - EDU ■ Tableau Online ■ Tableau on-premise

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BI Progress

BI solutions *FY17 LUC actual cost*

LUC BI solutions current cost per year

PBI – EDU, $630

Tableau on premise, $12,000

WebFOCUS, $45,000

BI SOLUTION

Cost per solution

$0 · $5,000 · $10,000 · $15,000 · $20,000 · $25,000 · $30,000 · $35,000 · $40,000 · $45,000 · $50,000

Legend: ▪ PBI - EDU ▪ Tableau on premise ▪ IBI WebFOCUS Enterprise

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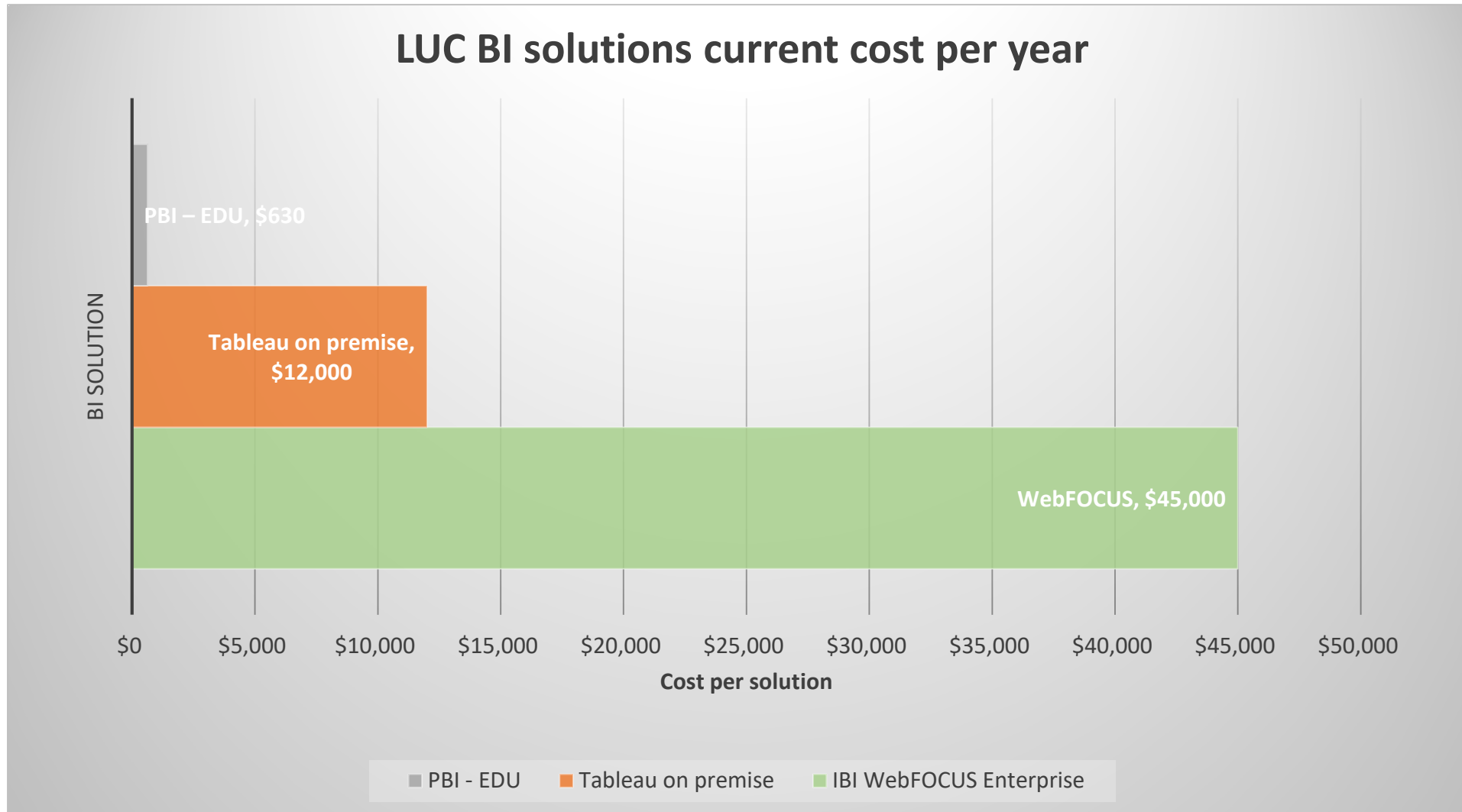
BI Progress

BI Maturity by Industry

Look Across Industries for Inspiration

Industry	Rating
Transportation	2.84
Services	2.77
Retail	2.76
Banking & Financial Services	2.75
Wholesale trade	2.74
Manufacturing & Natural Resources	2.73
Communications	2.73
Insurance	2.73
Media	2.72
Healthcare Providers	2.72
Energy & Utilities	2.7
Other	2.57
Government	2.56
Education	2.47

Rating

Gartner. *anywhere anytime*

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BI Progress

What other colleges are doing

Ivy Community College: Measures of Success

- Self-service BI users grew from 225 users to over 3,000 users.

- Model that predicted class failure with 80% accuracy. Reduced D and F grades by 3.3% through active outreach to students.

- Will receive up to $4 million in state performance funding by identifying degrees achieved but not awarded.

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BI Progress

What other colleges are doing

This University Is Transforming Education Quality Through Big Data

- Opportunity:
  - Georgia State University was facing student advisor crunch and wanted to improve graduation rates by optimizing available resources.

- Data and Analytics:
  - Took help with a consulting firm, EAB and analyzed 2.5 million grades records over 10 years to create a list of factors that hurt chances for graduation.
  - It then applied predictive analytics and built an early warning system, which it calls GPS, for Graduation and Progression Success.

    LUC IR Dept has a predictive Student Success Model which is updated every year/term

- Results:
  - System prompted 51,000 in-person meetings between students and advisors and graduation rates are up 6% points since 2013.
  - Graduates are getting that degree an average half a semester sooner than before, saving an estimated $12 million in tuition.

Gartner.

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BI Progress

What other colleges are doing

MOTIVATION

WHY DID WE NEED TO CHANGE?

- Need for timely information
  - Data digest took 8-9 months to produce from the time of data availability
- Increase user functionality and experience
  - Many desired data cuts had to be custom build on request, and pre-existing data was separated into over 60 pages of content
  - Reduce clutter and confusion
- Improve internal process efficiencies
  - Share and create more data faster, via dashboards

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PURDUE
UNIVERSITY

Purdue – need to replace their official IR "Data Digest" site

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BI Progress

What other colleges are doing

WHAT IS IDAP?

THE INSTITUTIONAL DATA ANALYTICS PLATFORM (IDAP)

- IDAP is a data storage and computation environment
  - Holds structured or unstructured data
  - Massively parallel processing for high-speed analytics
- Currently holds many sources of data
  - Student information systems
  - Learning management systems
  - Card swipe access data
  - Wireless network activity (Big Data: ~56B Rows, 20+TB raw text)
  - Ad-hoc data sources as needed
- Acts as a 'gray box' to hold all data in one place, making data exploration across data sets from different systems easier

PURDUE
UNIVERSITY

Purdue – uses Tableau to generate dashboards that replace old web pages with embedded PDFs

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BI Progress

What other colleges are doing

CONSOLIDATION

MASSIVE REDUCTION IN USER FACING PAGES

Enrollment Webpages with PDFs:

- Enrollment by Student Level
- Enrollment by College/School and by Student Level
- Enrollment by Full-Time and Part-Time
- Enrollment by Residency
- Residency as a Percentage of Enrollment by Student Level
- Full-Time Equivalency
- Enrollment by Gender
- Female Enrollment by Student Level by College/School
- Enrollment by Race/Ethnicity
- Enrollment by International Students
- Enrollment by Age
- Regional Camus Enrollment by Full-Time and Part-Time and Full-Time Equivalency
- Regional Camus Enrollment by Gender
- Regional Camus Enrollment by Race/Ethnicity
- Regional Camus Enrollment by Level and Residency
- System-wide Enrollment by Student Level
- System-wide Enrollment by Full-time and Part-Time and Full-Time Equivalency
- System-wide Enrollment by Gender, Race/Ethnicity
- System-wide Level and Residency
- Enrollment by Indiana County
- Enrollment by U.S State and Region
- International Student Enrollment by Level by Country

Student Enrollment

Enrollment by County, State, and Country
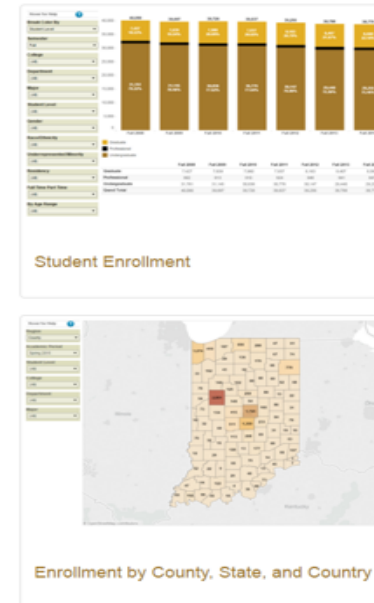
- In total, 61 webpages with embedded PDFs reduced to 12 dashboards, which contain **more** information than what was originally available

6

PURDUE
U N I V E R S I T Y

Purdue – uses Tableau to generate dashboards that replace old web pages with embedded PDFs

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BI Progress

What other colleges are doing

Decision Support Initiative (DSI)

The Goal of the Decision Support Initiative :   Transform Decision-Making

To improve decision making at all levels of Indiana University by dramatically enhancing the availability of timely, relevant, and accurate information to support decision makers.

DECISION SUPPORT
DS.IU.EDU

Empower Decision-Makers

Improve Decision Outcomes

Support IU Strategic Plan 2020

Indiana University – DSI definition

INDIANA UNIVERSITY

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BI Progress

What other colleges are doing

DSI Resources: Budget and Staff

BUDGET

$$,$$$,$$$.$$

STAFF
- Plan (30.16)
- Actual (26.16)

TIME

28 months

Indiana University – DSI

BI Progress

What other colleges are doing

A typical Blackboard report…

Rubric Statistics Report

Report Sections: Overview
Rubric Overall Performance
Rubric Analysis
Frequency Distribution

Overview

Current Instrument Name: Assignment 1
Rubric Name: Case 1
Rubric Description: Percent Rubric
Rubric Type: Percent
Total Evaluations: 2
Begin Date: Jan 1, 2001
End Date: Jan 1, 2020

Rubric Overall Performance
Points Possible: 100.00
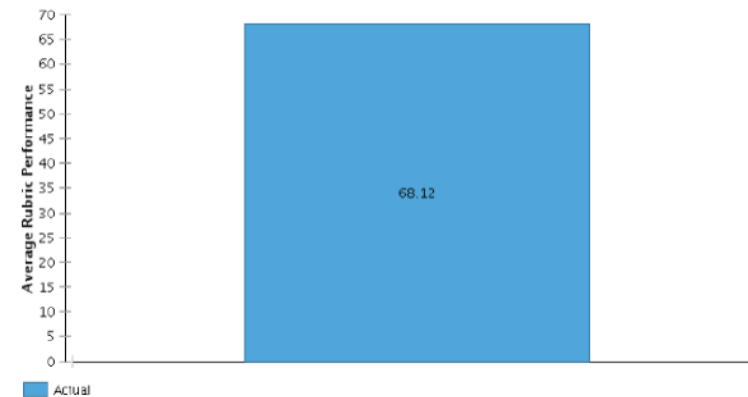
User Pain Points

- Static PDF
- No drill down
- Can't analyze cross-courses
- Limited insight

Temple University – Fox School of Business uses Power BI to track student competency score

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BI Progress

What other colleges are doing

Persistence Rate, Retention Rate, & Graduation Rate* of FTIC Cohorts Fall 2008-2015
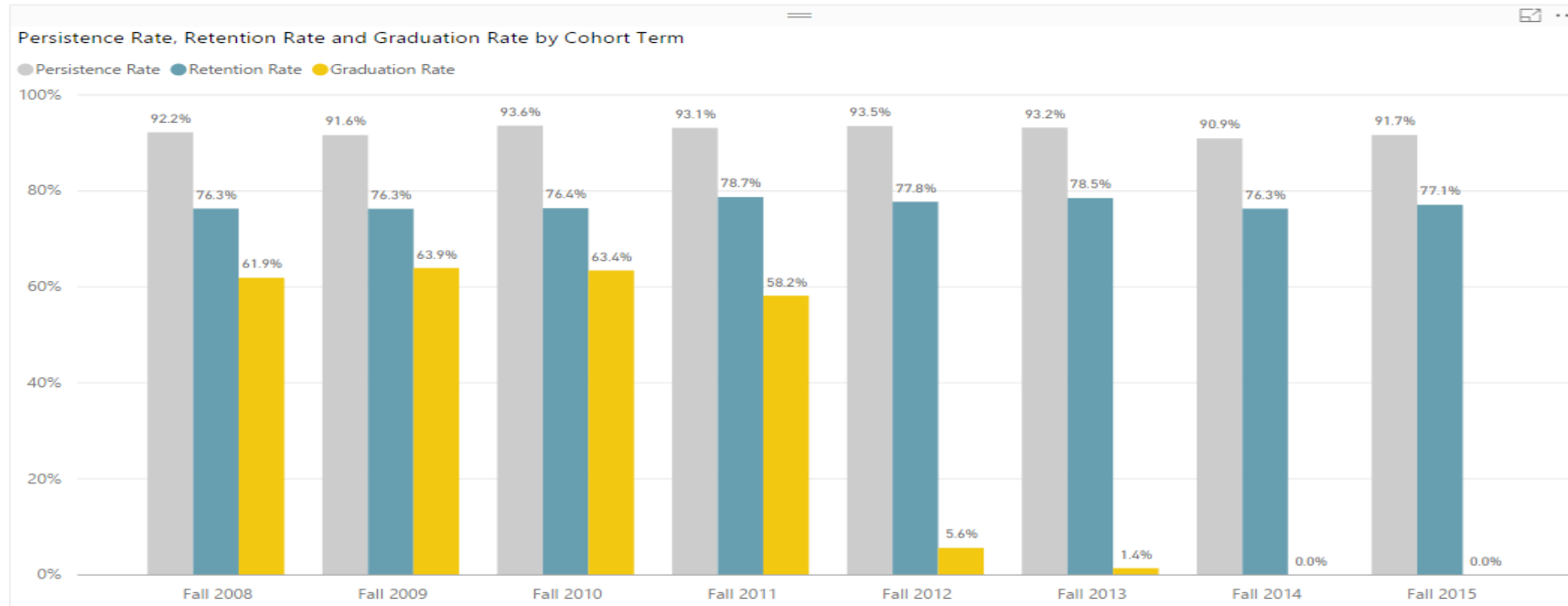
Stetson University – The IR department of Stetson University uses Power BI to publish all of their official data

BI Progress

What other colleges are doing

Arizona State – has very mature model and is also using Microsoft Power BI

BI Progress

Acknowledgement and Research:

- Gartner Magic Quadrant for Business Intelligence and Analytics Platforms (Rita Sallam and Others – G00270380)

- Power BI End-To-End Features (Melissa Coates)

- MS BI Integration for 4 Primary Report Types (Melissa Coates)

- Origin of Data Visualization (Andrei Pandre)

- Higher Education Data Warehousing Forum

- Microsoft Higher Education DW/BI/BigData Community

- How to innovate with Information: 40 Real-worlds Examples – Gartner Data and Analytics Summit 2017 (Douglas Laney)

- BICC to ACE: From Command and Control to Collaborate and Enable – Gartner Data and Analytics Summit 2017 (Cindy Howson)

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Business Intelligence
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Summer Project: 10Gb Connectivity/NGFW
- **D. Vonder Heide, J. Sibenaller**

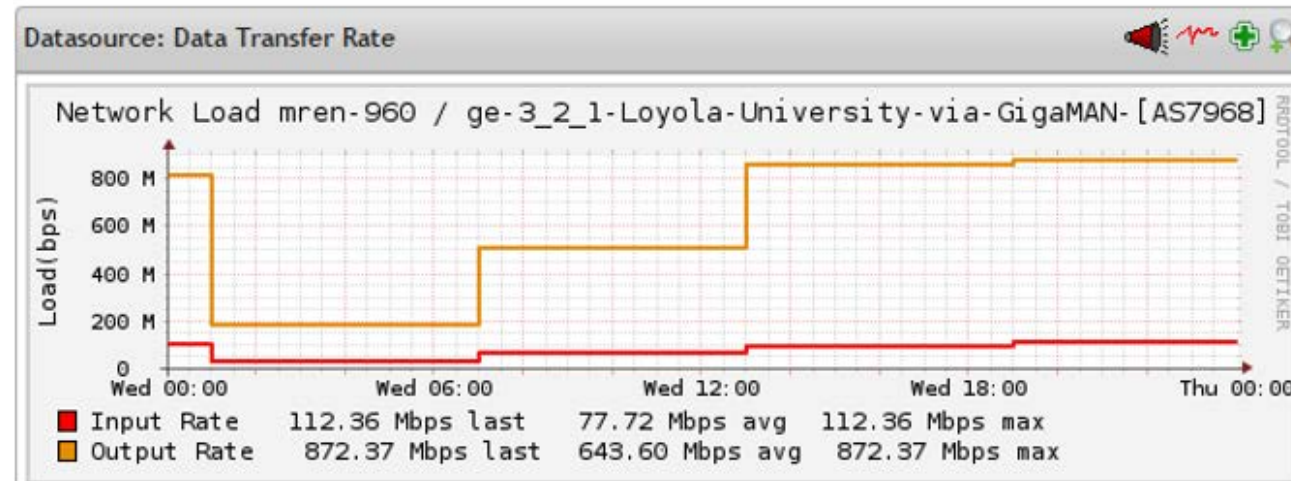Academic Year 2017-18 Project: Box to OneDrive
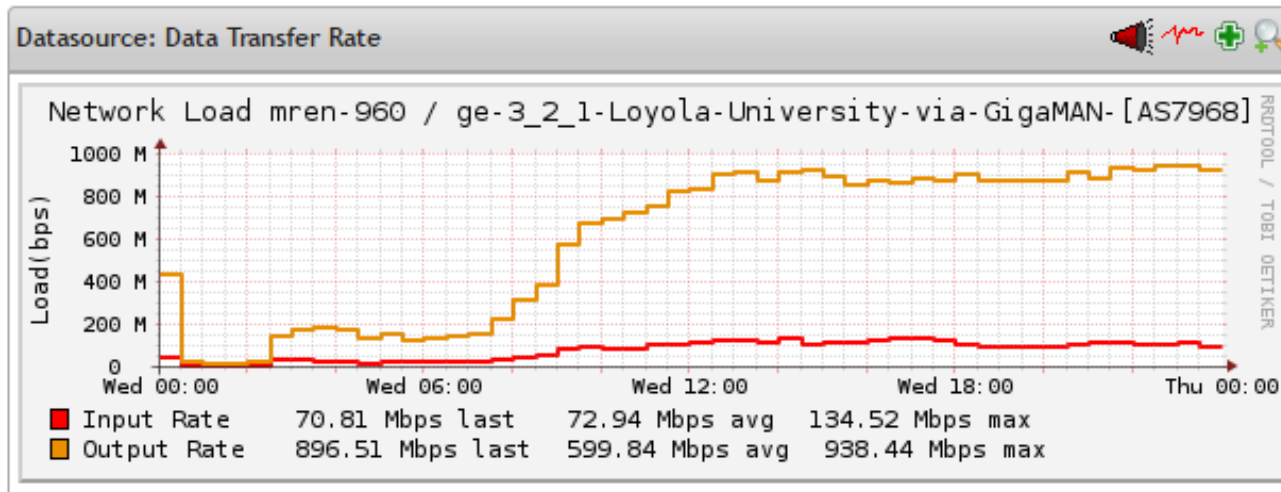- D. Vonder Heide
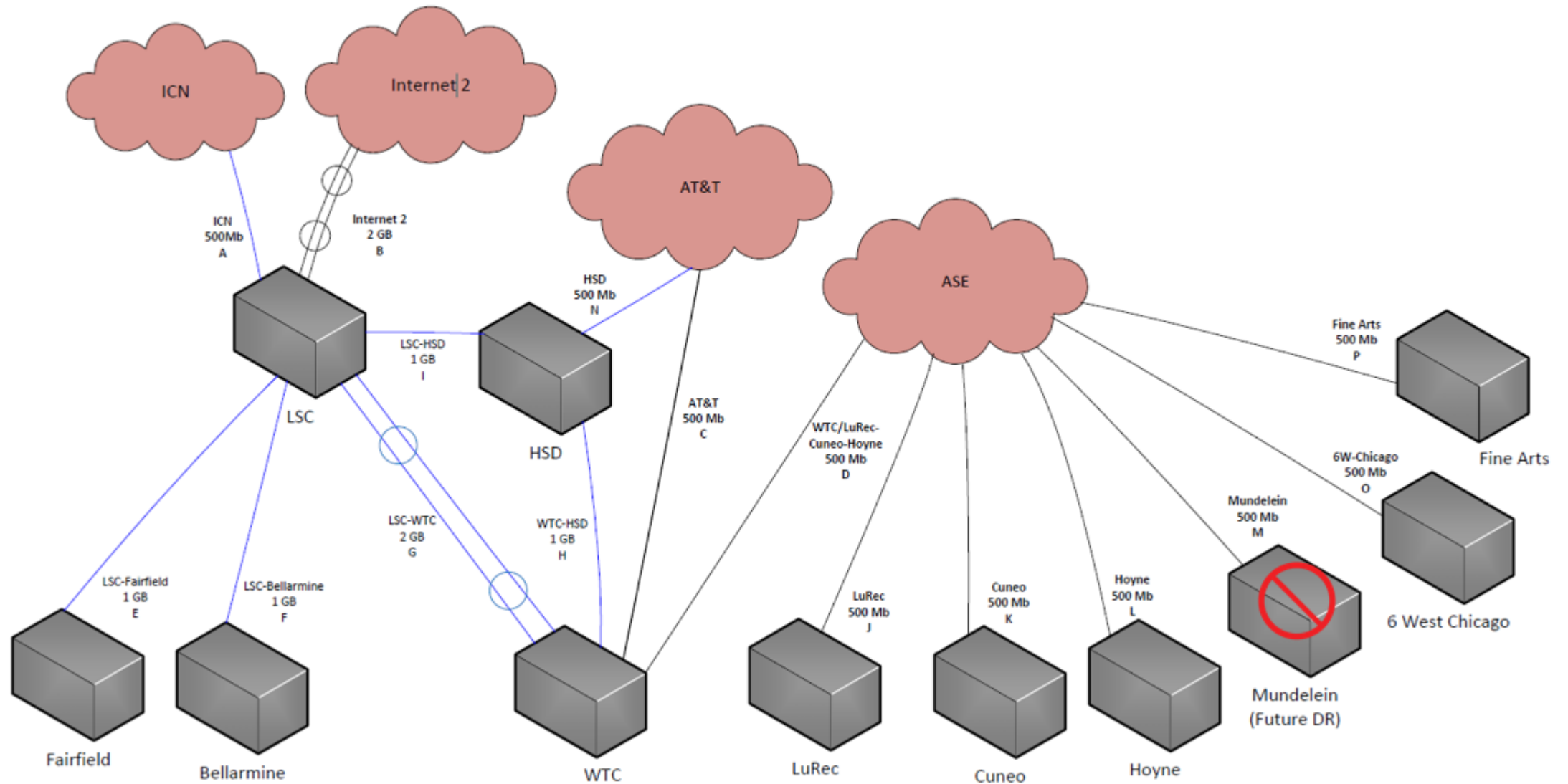
Information Security Training
- J. Sibenaller

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Internet Usage

Custom time range 16.09.15 0:00 - 17.09.15 0:00

Datasource: Data Transfer Rate

Network Load mren-960 / ge-3_2_1-Loyola-University-via-GigaMAN-[AS7968]

| | Input Rate | 112.36 Mbps last | 77.72 Mbps avg | 112.36 Mbps max |
| Output Rate | 872.37 Mbps last | 643.60 Mbps avg | 872.37 Mbps max |

Custom time range 05.04.17 0:00 - 06.04.17 0:00

Datasource: Data Transfer Rate

Network Load mren-960 / ge-3_2_1-Loyola-University-via-GigaMAN-[AS7968]

| | Input Rate | 70.81 Mbps last | 72.94 Mbps avg | 134.52 Mbps max |
| Output Rate | 896.51 Mbps last | 599.84 Mbps avg | 938.44 Mbps max |

Current Internet Connectivity

Proposed Internet Connectivity
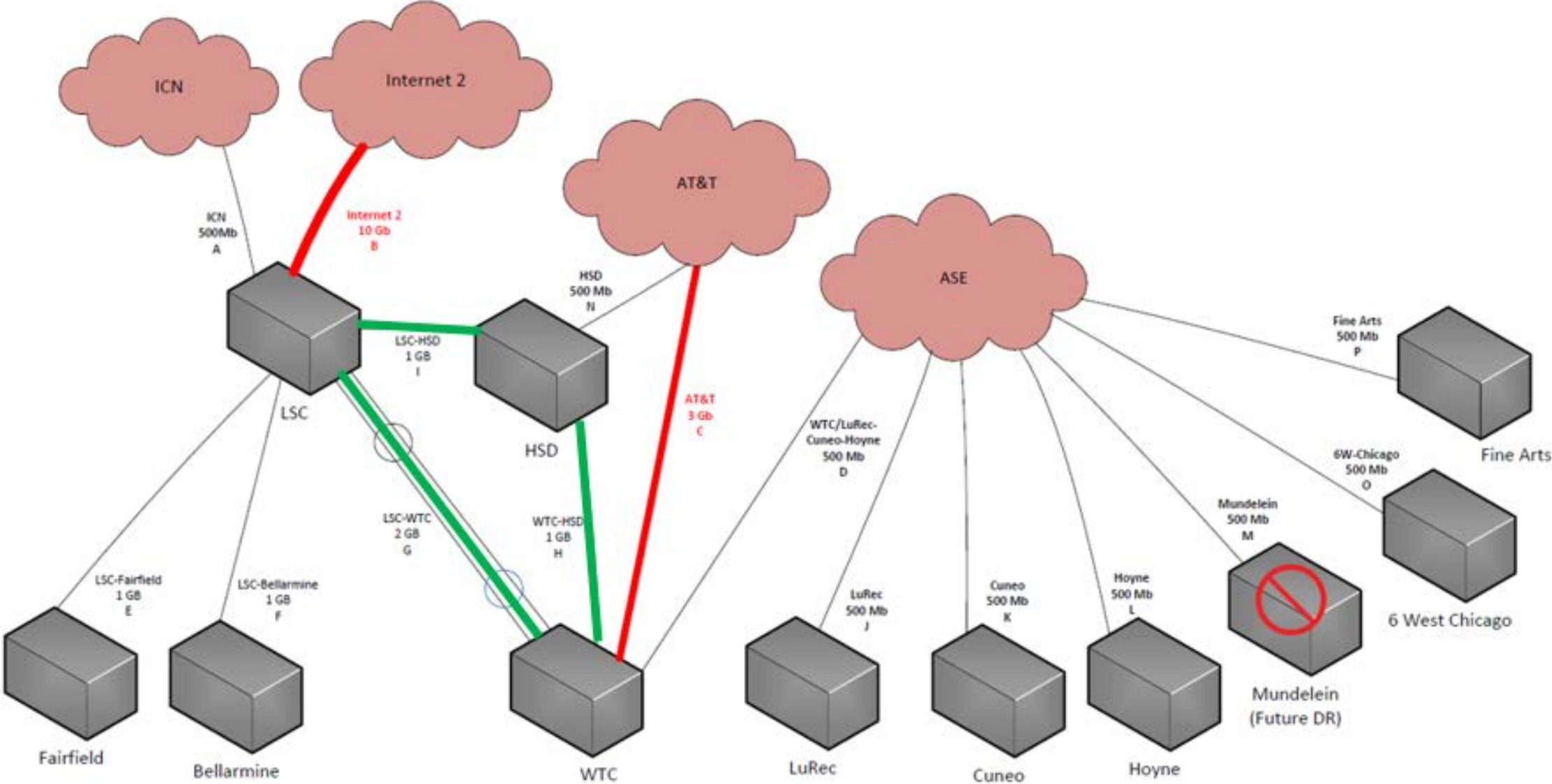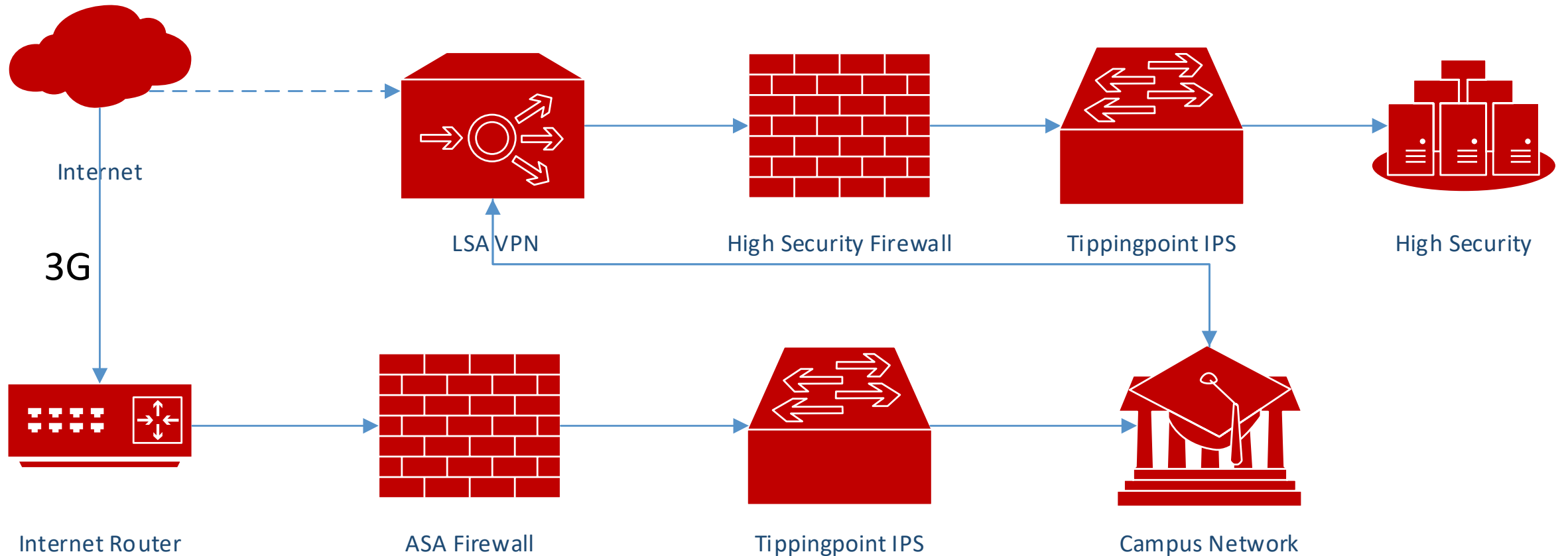
Information Security Impacts

- Why did we look into this?
  - We need to provide information security protection on 10Gb worth of internet traffic. Our current Intrusion Prevention System at Lakeshore has a maximum capacity of 3Gb.
  - Upgrading our Trend Micro Tipping Point IPS from 3Gb to 10Gb was not cost effective.
  - The announced end-of-life for the Pulse Secure VPN provides a unique opportunity to possibly combine our firewalls, IPS and VPN into one product, reducing the complexity of our technology inventory.
  - Considered Next Generation Firewall technology to provide <u>advanced threat protection</u>.
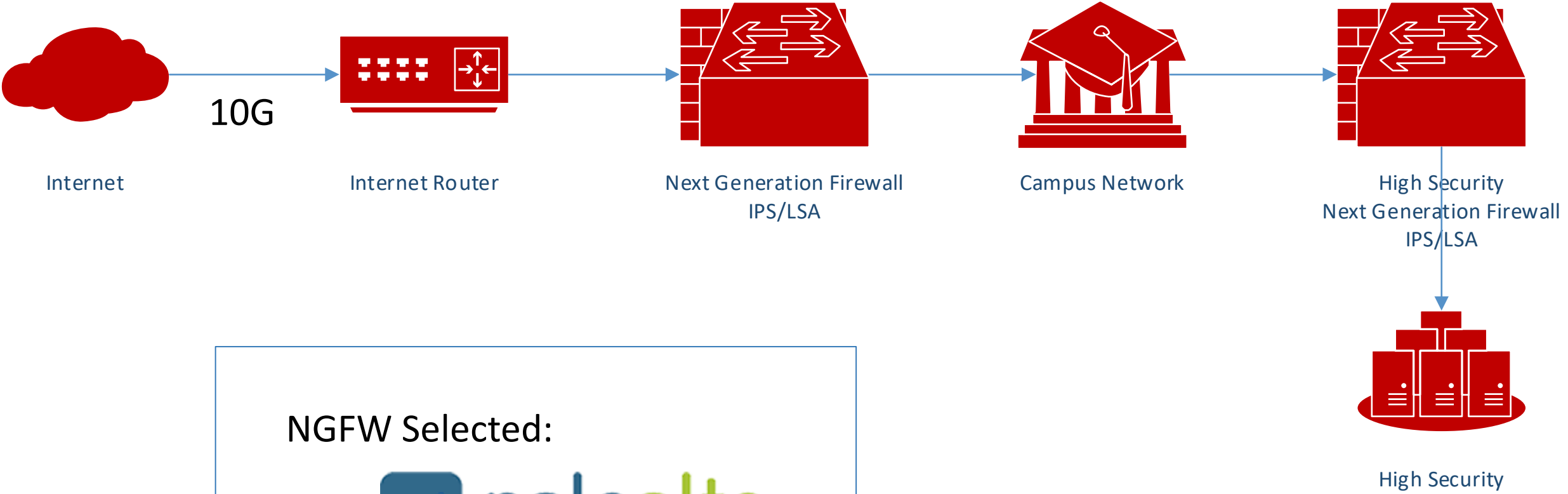   *(planned maturity step for the information security program at Loyola)*

- What is a Next Generation Firewall?
  - A next-generation firewall (NGFW) is a hardware or software-based network security system that is able to detect and block sophisticated attacks by enforcing security policies at the application level, as well as at the port and protocol level.
  - NGFW's typically integrate three key assets: enterprise firewall capabilities, an intrusion prevention system (IPS) and application control. For this analysis we also included virtual private network capabilities.

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Current State – Firewall, Intrusion Prevention & LSA/VPN

Internet

3G

LSA VPN

High Security Firewall

Tippingpoint IPS

High Security

Internet Router

ASA Firewall

Tippingpoint IPS

Campus Network

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Future State – Next Generation Firewall, Threat Prevention & LSA/VPN

10G

Internet

Internet Router

Next Generation Firewall
IPS/LSA

Campus Network

High Security
Next Generation Firewall
IPS/LSA

NGFW Selected:

paloalto
NETWORKS

High Security

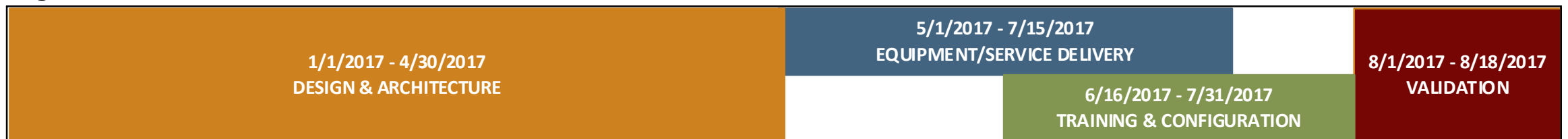*anywhere anytime*
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Value of a NGFW

- Fully functioning state of the art firewall

- Advanced cyber threat protection/real-time notification and blocking of malware

- Zero day attack prevention (sandboxing)

- Granular site blocking capabilities (Weebly ex.)

- Fully functioning VPN

- Eliminate multiple devices, 3-1
    - Firewall
    - Cyber threat prevention   Next Generation Firewall
    - Virtual private network

- Palo Alto NGFW
    - Scored the highest during our "bake off" comparison
    - Best NGFW in the Market
    - Sizing based on Campus need
    - Best price point of 4 options reviewed
    - Used by 50+% of polled EDU's (incl. Fordham, Marquette, Xavier, USF)

10Gb Internet Bandwidth/NGFW Next Steps

- Infrastructure & NGFW equipment ordered
  - Delivery scheduled for June
- Equipment installs scheduled for June
- Administrative Training - June
- 10Gb circuits ordered & scheduled for July
- Validation beginning August 1st
- Live for FY18 Fall Semester

High Level Timeline

| 1/1/2017 - 4/30/2017 DESIGN & ARCHITECTURE | 5/1/2017 - 7/15/2017 EQUIPMENT/SERVICE DELIVERY | 6/16/2017 - 7/31/2017 TRAINING & CONFIGURATION | 8/1/2017 - 8/18/2017 VALIDATION |

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Business Intelligence
- T Vavarutsos, K. Smith

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- D. Vonder Heide, J. Sibenaller

Academic Year 2017-18 Project: Box to OneDrive
- **D. Vonder Heide**

Information Security Training
- J. Sibenaller

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Box to OneDrive

- Beyond storage, Box filled Loyola's collaboration need

- OneDrive for Business part of Loyola's existing Office 365 suite

Benefits Over Box

- Storage Capacity
  - 1TB per Individual VS. 54TB Shared for All
- Improved Security
  - Includes DLP / Auditing / Multi-Factor
- Real-Time Collaboration
  - Same Document, Same Time
- Office 365 Integration
  - Integrates into Email
- Windows 10 Integration
  - No Download to Synchronize Files/Folders
- Cost
  - OneDrive - Enterprise Agreement

File   Edit   View   Favorites   Tools   Help

Office 365 | OneDrive

Search

Vonder Heide, Daniel

Files
Recent
Shared with me
Discover
Recycle bin

Loyola University Chicago +

IM Infrastructure Managers

OneDrive admin

Get the OneDrive apps

Return to classic OneDrive

+ New ∨   ↑ Upload   ⟳ Sync

Files

✓   ↑ Name

- AJCU 2013 Conference
- AJCU 2013 Presentation
- Budgets
- Campus Maps
- Default Sync Folder
- Documentation
- Health Sciences
- ITS - Various Division Repo...
- Loyola Pictures
- Meeting Notes
- Projects

Side-By-Side

LOYOLA
UNIVERSITY CHICAGO

Search Files

All Files ▾

↑ Upload   + New

2013 Staff Appreciation Day
Updated Feb 20, 2013 by Tim Walker 📄1

Adobe DR Plan
Updated Feb 26, 2015 by Ann Simmons 📄4
ITS - Project Completed   Review Annually

AJCU 2013 Conference Owner
Updated Jul 6, 2013 by Bruce Montes 📄8

AJCU 2013 Presentation Owner
Updated Oct 2, 2015 by Dan Vonder Heide 📄1

AJCU and LUC Pics Co-Owner
Updated May 24, 2014 by Bruce Montes 📄1

AJCU-CITM2014 Co-Owner
Updated Jul 3, 2013 by Bruce Montes 📄43

BCDR Templates
Updated Jun 12, 2014 by Ann Simmons 📄10

Bob H Photos
Updated Oct 22, 2015 by Chris Oh 📄47

Bregy
Updated Nov 15, 2016 by Bruce Montes 📄8

Capital Assets and Facilities
Updated today by Asim Gangopadhyaya 📄5

Data Center Photos
Updated Nov 6, 2013 by Jeffrey Apa 📄68

Default Sync Folder
Updated Oct 27, 2012 by Dan Vonder Heide 📄0

Disaster Recovery Documents for Plan (Final)
Updated May 6, 2014 by Ann Simmons 📄6

Disaster Recovery Plan Templates
Created May 29, 2014 by Phil Vitkus 📄3

Current Cloud Storage Usage

- Average Daily Users
  - Box – 450
  - OneDrive – 400

- Top 5 Users

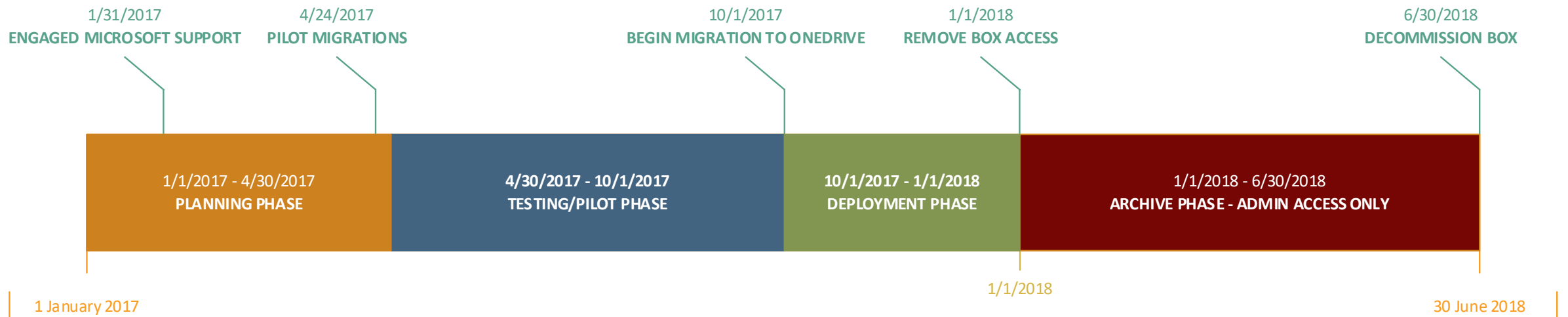| BOX		ONEDRIVE	
USER	STORAGE	USER	STORAGE
Facilities Shared Group	105 GB	Steve Kim	1 TB
Jessica Brann	50 GB	Rafael Arias Camero	174 GB
James Collins	44 GB	Chlece Neal	141 GB
Gina Kuffel	35 GB	Matthew Schreier	105 GB
Rodney Dale	32 GB	Jim Sibenaller	103 GB

Storage Growth
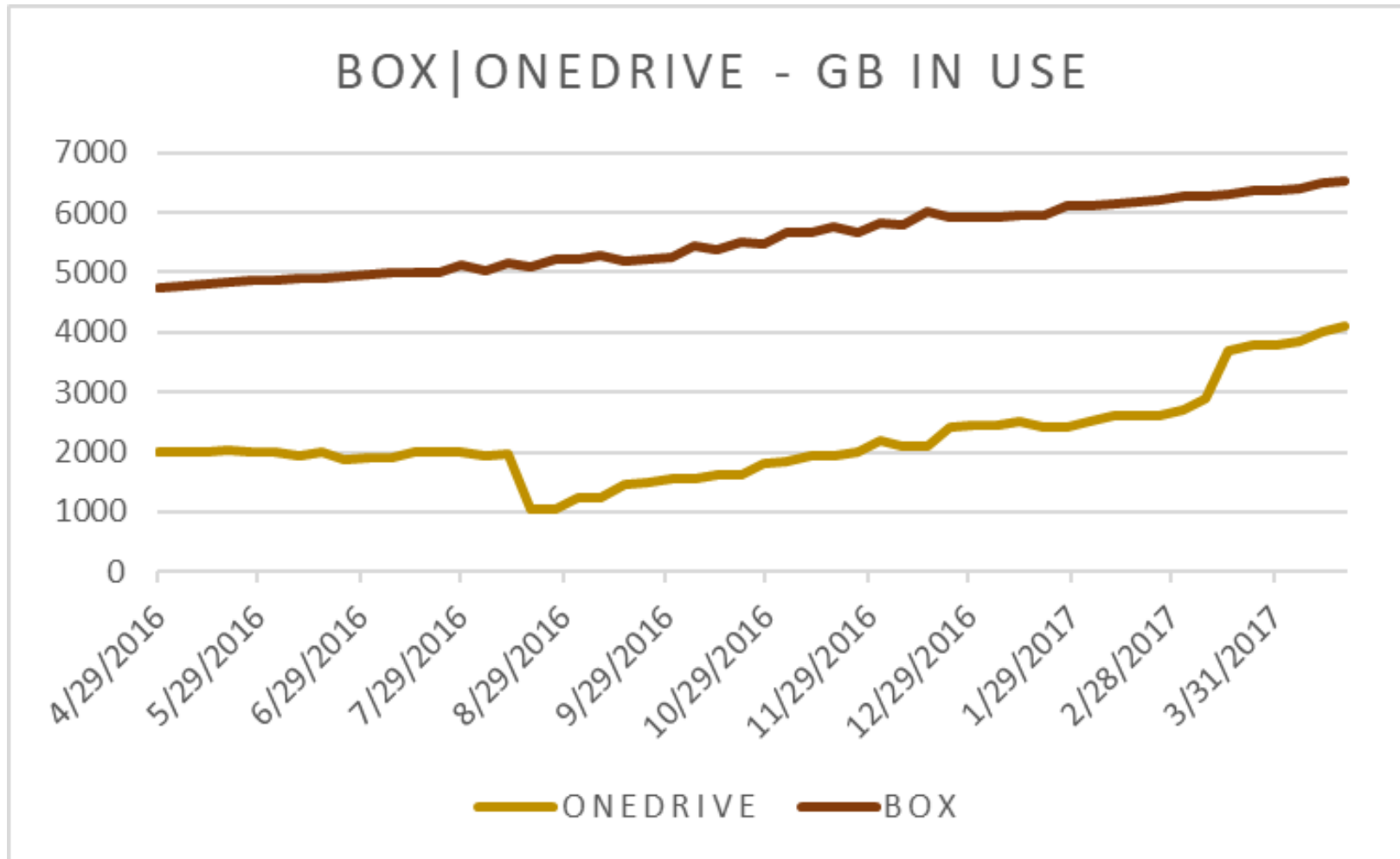
Migration Options

- Automated Box Migration
  - Retain Permissions w/ Loyola Users
- Manual Box Migration
  - Offers a Phased Approach
- Automated "U" Drive Migration
  - Currently Testing Within ITS

Migration TimeLine (PROPOSED DRAFT)

- Working with Microsoft to Migrate Several Test Users
- Announce Fall Semester
- Box – "Read Only"
- Box Officially Retired December 2017

1/31/2017	4/24/2017	10/1/2017	1/1/2018	6/30/2018
ENGAGED MICROSOFT SUPPORT	PILOT MIGRATIONS	BEGIN MIGRATION TO ONEDRIVE	REMOVE BOX ACCESS	DECOMMISSION BOX

1/1/2017 - 4/30/2017	4/30/2017 - 10/1/2017	10/1/2017 - 1/1/2018	1/1/2018 - 6/30/2018
PLANNING PHASE	TESTING/PILOT PHASE	DEPLOYMENT PHASE	ARCHIVE PHASE - ADMIN ACCESS ONLY

1/1/2018

1 January 2017

30 June 2018

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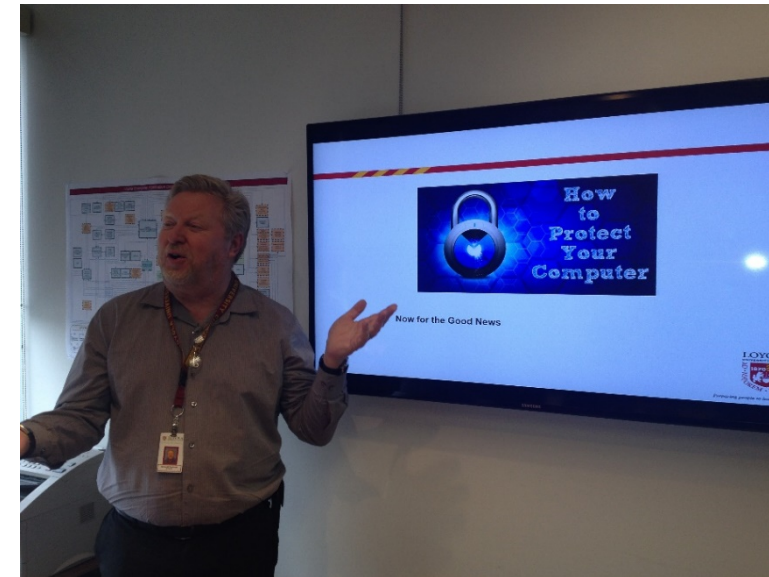Academic Year 2017-18 Project: Box to OneDrive
- D. Vonder Heide

Information Security Training
- J. Sibenaller

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Information Security Awareness, Education & Training

Awareness Program Components	Frequency and Usage
Posters	Annually during Cyber Security Awareness Month
Web Site	Online & available to all
Social Media	Weekly postings
Newsletter	Monthly distribution
Coffee Sessions	Semi-annually at each campus
Department Sessions	By request, average 1-2 per semester
Classroom Guest Lecture	By request, average 1-2 per semester
Emerge Class	Semi-annually at each campus
Video Training	Non mandatory, < 2% participation

Mandatory Information Security Training

- Proposal
  - Mandatory annual training for all faculty/staff
  - Training to commence in Fall FY18
  - 7 Videos, 23 minutes
  - No video longer than 5 mins
  - Learning outcome after each video
    - Test out in subsequent years
  - Total time approx. 45 minutes

Video Length	Videos
1:53	41 – Privacy
3:59	09 – Data Security
0:43	25 – Personally Identifiable Information
2:34	36 – Social Security Numbers
4:32	23 – FERPA
4:52	03 – Email & Messaging
4:26	07 – Passwords

- Process
  - Utilize Sakai Collaboration Space (or better tool if identified)
  - Reminders & escalations
  - Segment by Campus/Staff Type for ease of management
  - Allow to save and come back to finish
  - Allow 45 days to complete
  - Non completion will result in disabled login

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2017 ITESC Schedule

January 26, 2017 - Thursday, 1:30-3:30 PM
- Project Portfolio Prioritization Results
- Status Updates – Major Upgrades
  - Student System, Phone System, Advance, Document Mgmt

May 04, 2017 - Thursday, 1:30-3:30 PM
- Project Portfolio Prioritization
- Summer Project: 10Gb Connectivity/NGFW
- Academic Year 2017-18 Project: Box to OneDrive
- Information Security Training

June 15, 2017 - Thursday, 1:30-3:30 PM
- Project Portfolio Prioritization

August 31, 2017 – Thursday 1:30-3:30 PM

October 26, 2017 - Thursday, 1:30-3:30 PM

December 12, 2017 - Tuesday, 1:30-3:30 PM
- Project Portfolio Prioritization

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