Splunking IT Data Is Great, Splunking Non-IT Data Is Awesome

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About the University of Adelaide

THE UNIVERSITY of ADELAIDE

The University of Adelaide is one of Australia's leading research-intensive universities and is consistently ranked among the top 1% of universities in the world. Established in 1874, it is Australia's third oldest university with a strong reputation for research and teaching excellence, and producing graduates that make an impact on the world.

About Mathew

- Information Security Specialist at the University of Adelaide
- Information Security for 8 years, IT for 14
- Resident Splunk Guy

Agenda

- Why Splunk at the University?
- Cool Stuff For IT Teams
- Awesome Stuff Not For IT

THE UNIVERSITY of ADELAIDE

But First… Where is Adelaide?

- Here
- ~ 1,100 km (~700 Miles) from Sydney
- 13,505 km (8392 Miles) from here
- 3 Flights, almost 18 hours in the air

Why Splunk?

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Executive Summary: Before Splunk

Executive Summary: After Splunk

Why We Chose Splunk

- In 2011, attempting to deal with phishing attacks
- Created a Simple Authentication anomaly detection system
  - MySQL database
  - Poorly written ruby script
  - Radius logs

Why We Chose Splunk

- Flexibility
  - Traditional SIEM solutions are not as easy to drill down into the raw event
- Easy to learn
  - Knowledge of Operating System CLI and a bit of SQL
- Most importantly, Splunk met our Use Case requirements

Initial Splunk Use Cases

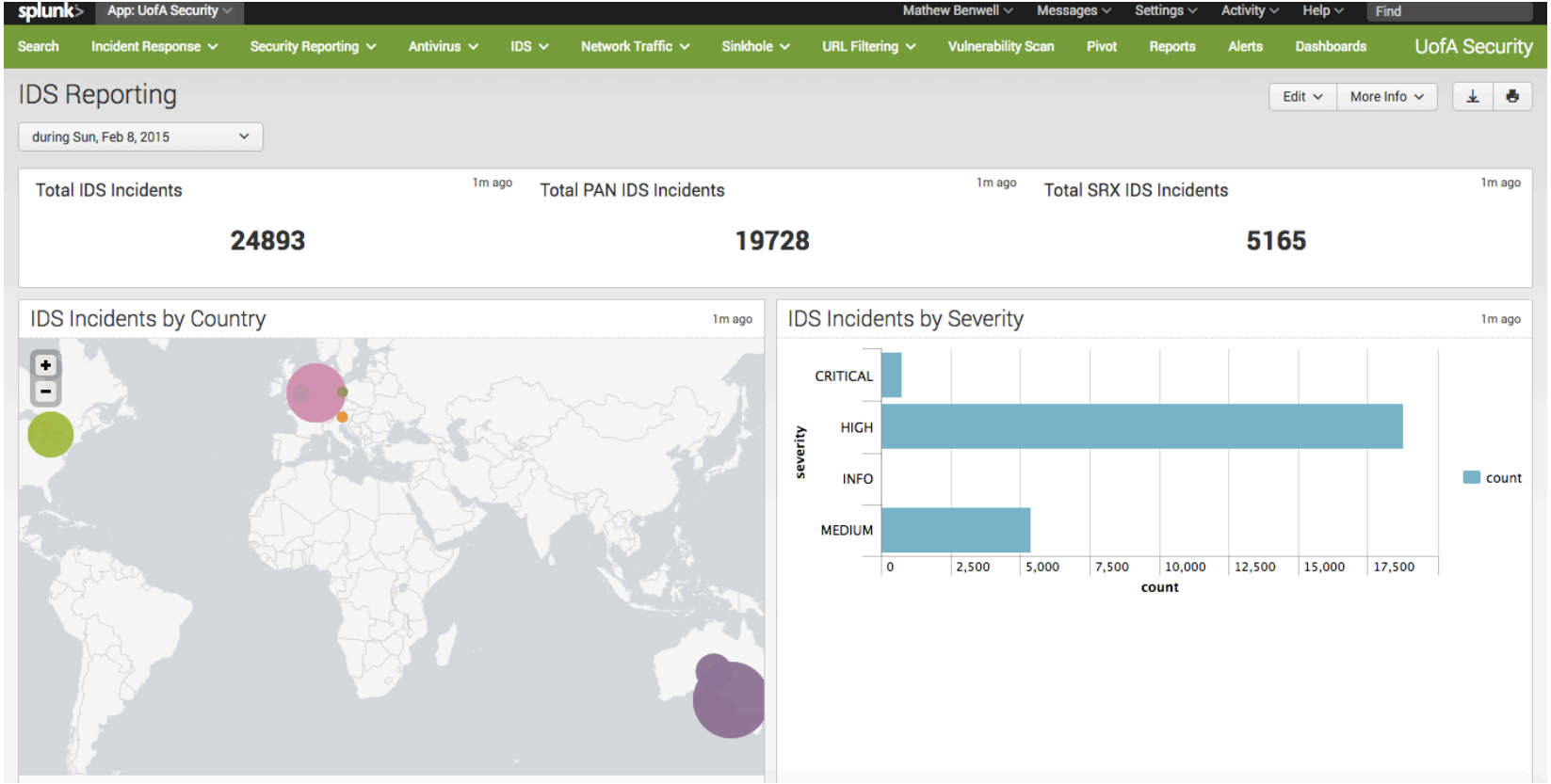
- Anomalies in authentication events
  - Logon within a given time frame for disparate geographic locations
- Phishing email detection
  - Common word list to help identify attacks
- Common account events
  - Failed logon events
    - Single source different account
    - Multiple sources same account
    - Failed logon followed by success
- Large mail volumes

Security Data Sources

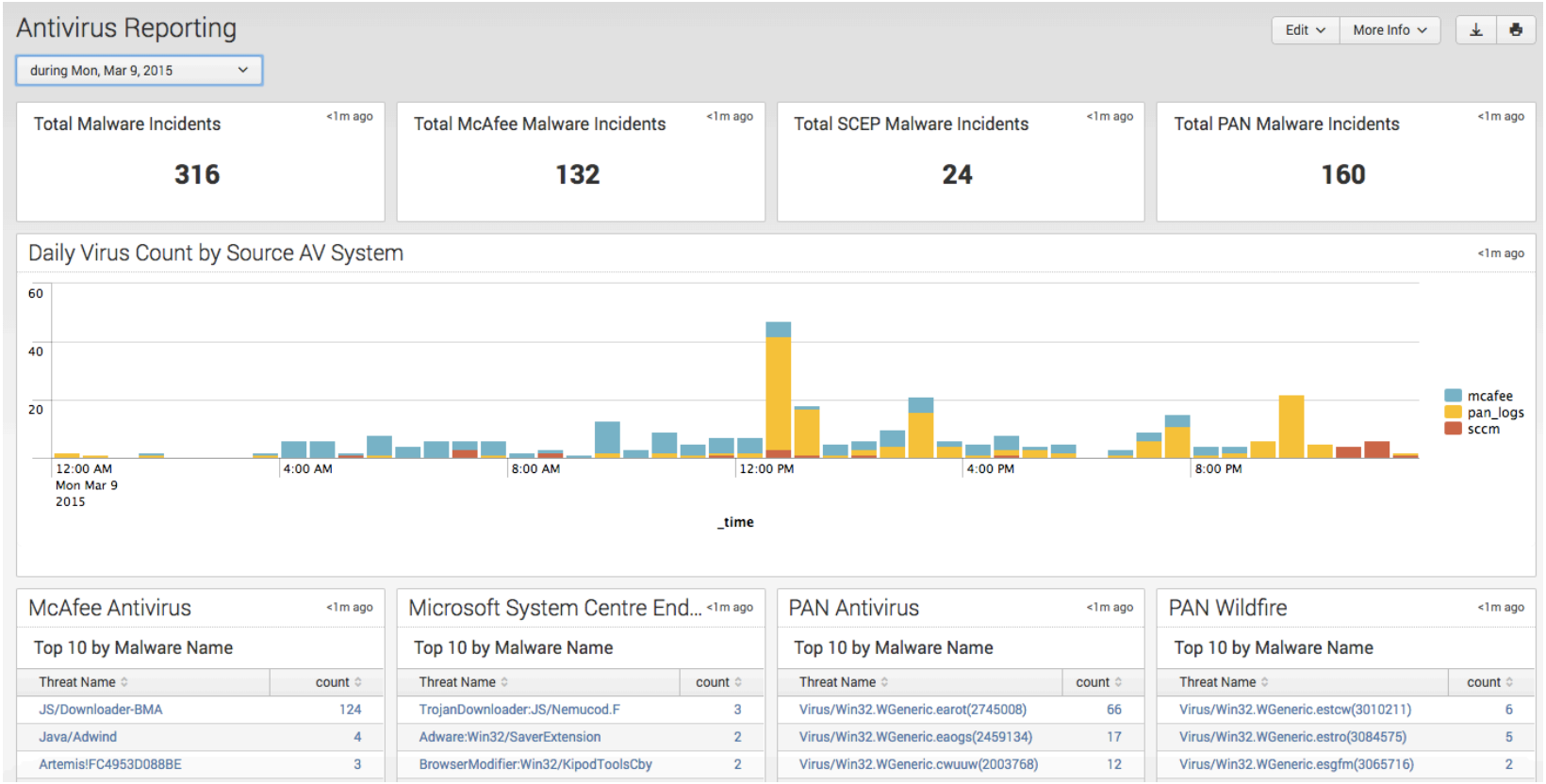
Splunk Common Information Model

- What is the Common Information Model (CIM)?
- Abstraction from raw data
- Standardized knowledge for events (i.e. field names)
- Used by Splunk for Enterprise Security

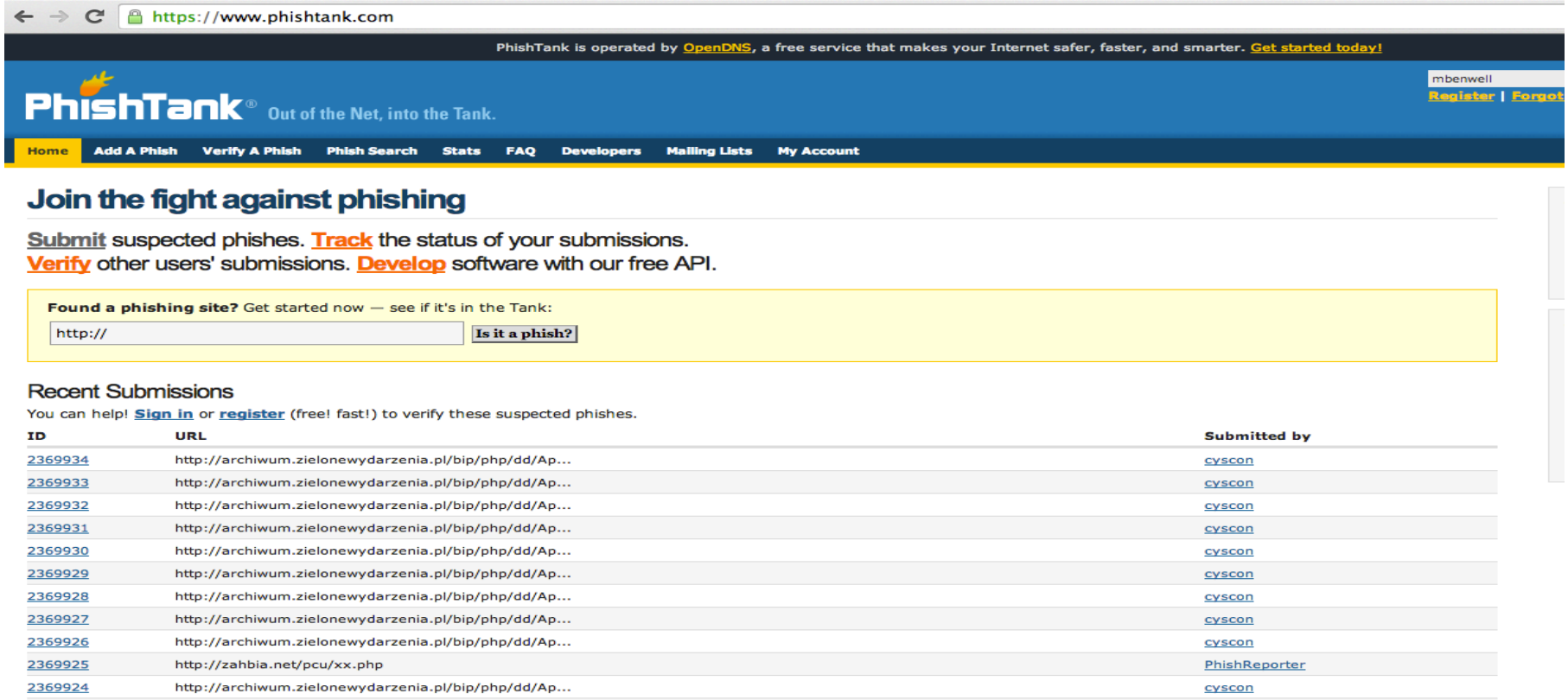
Security Uses – IDS/IPS



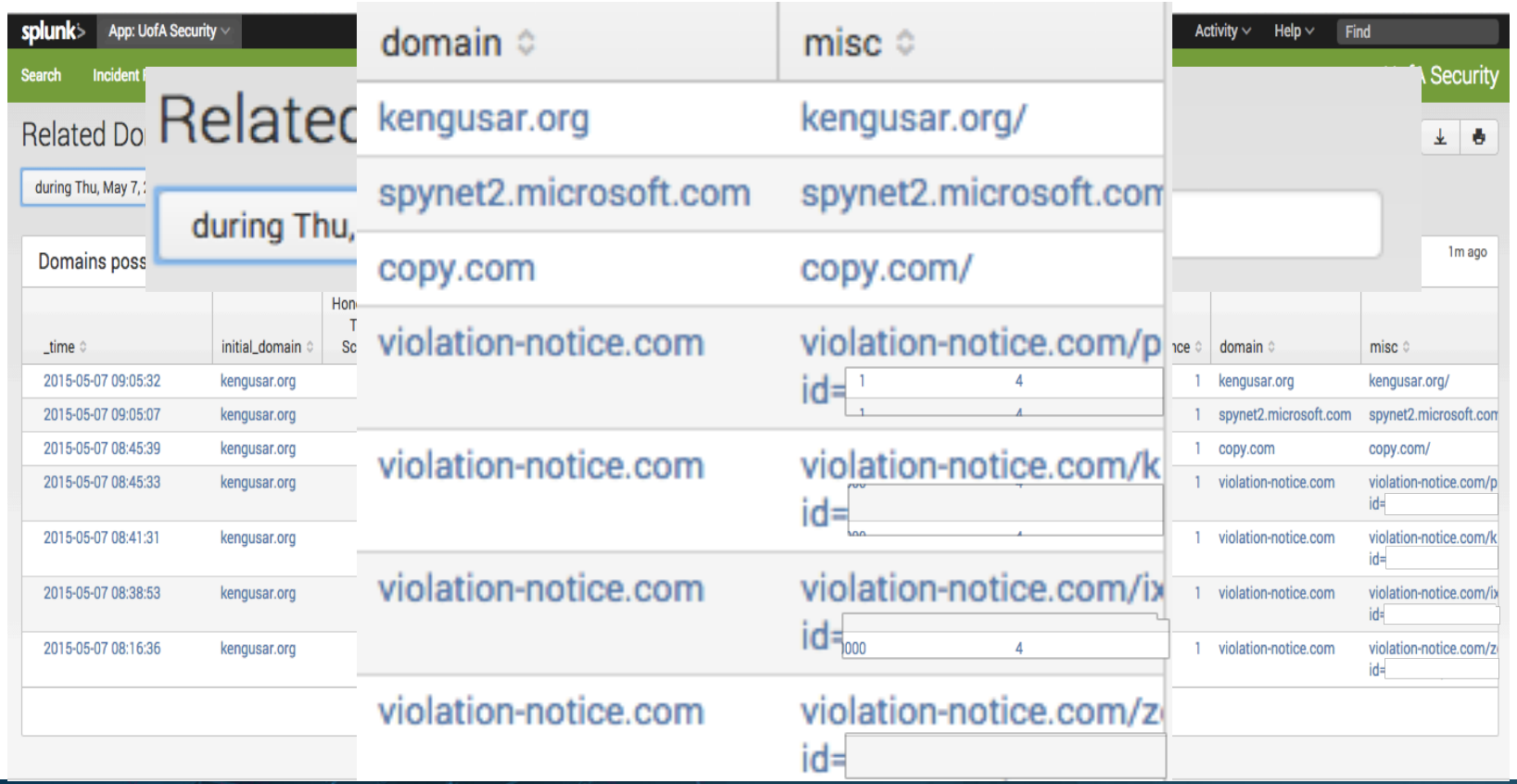
Security Uses – Anti-malware



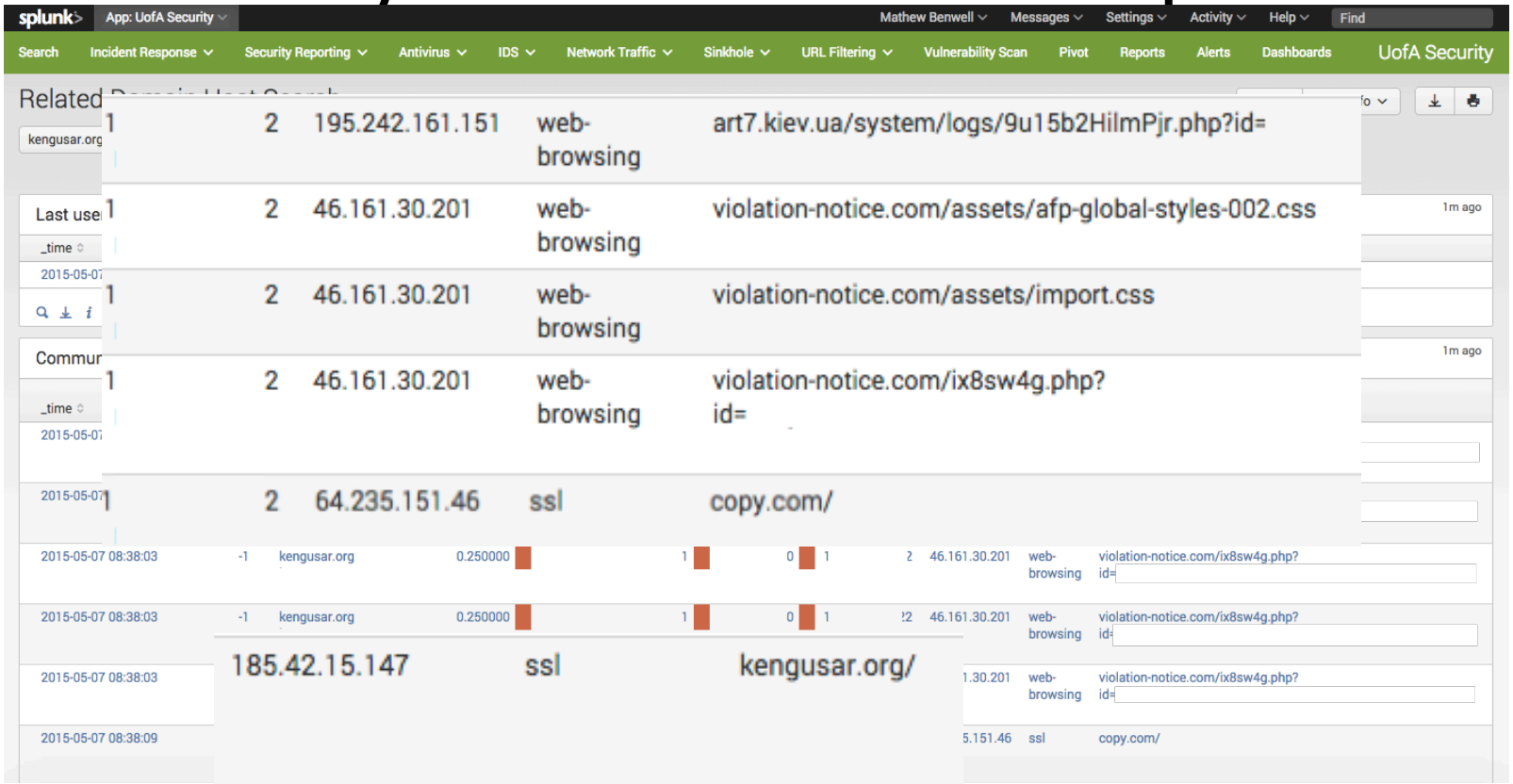
Security Uses: Looking For Bad Things



Security Uses – Incident Response



Security Uses – Incident Response



Great Stuff for IT

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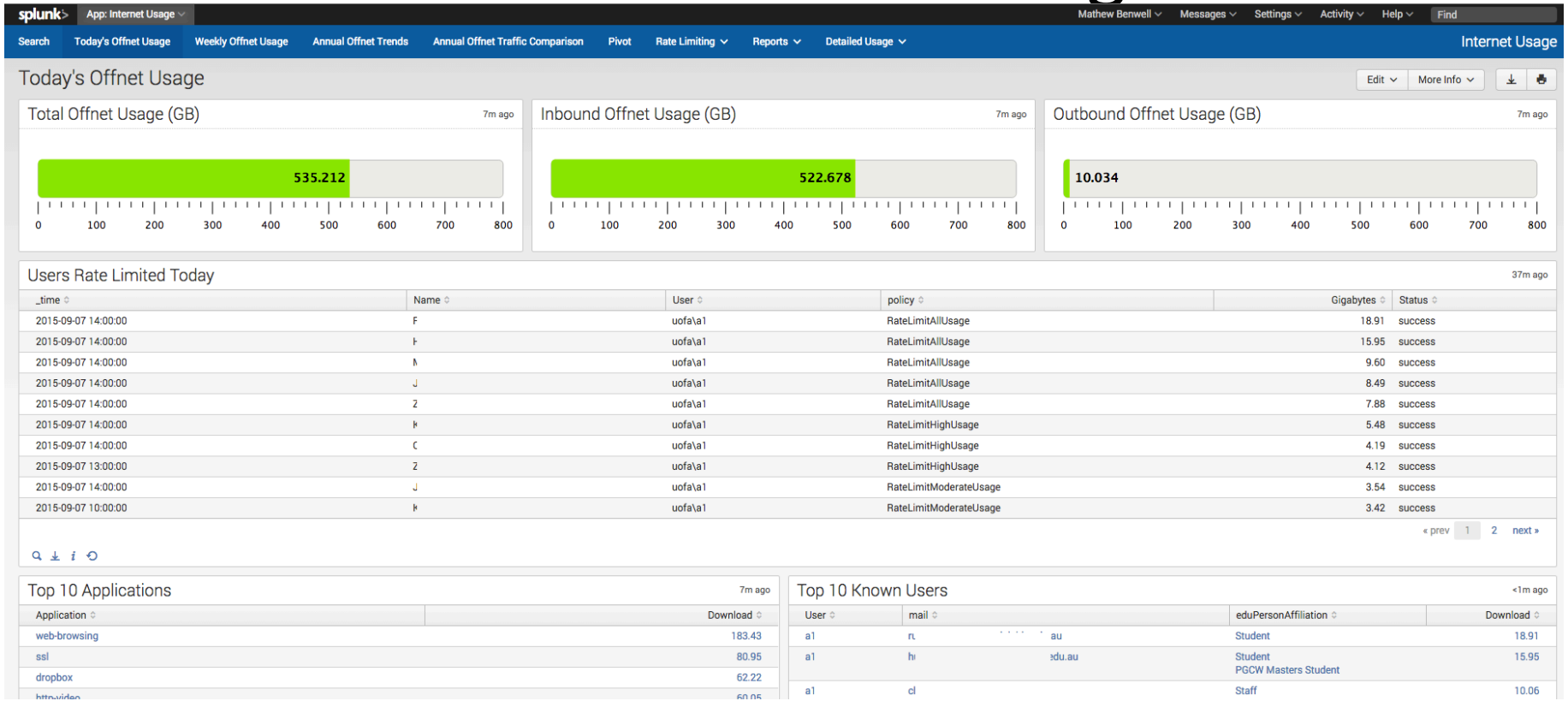
The Great Stuff

- Applications Monitoring
- Citrix Reporting
- Computer Suite Application Usage
- Internet Traffic Accounting
- Print Usage Reporting

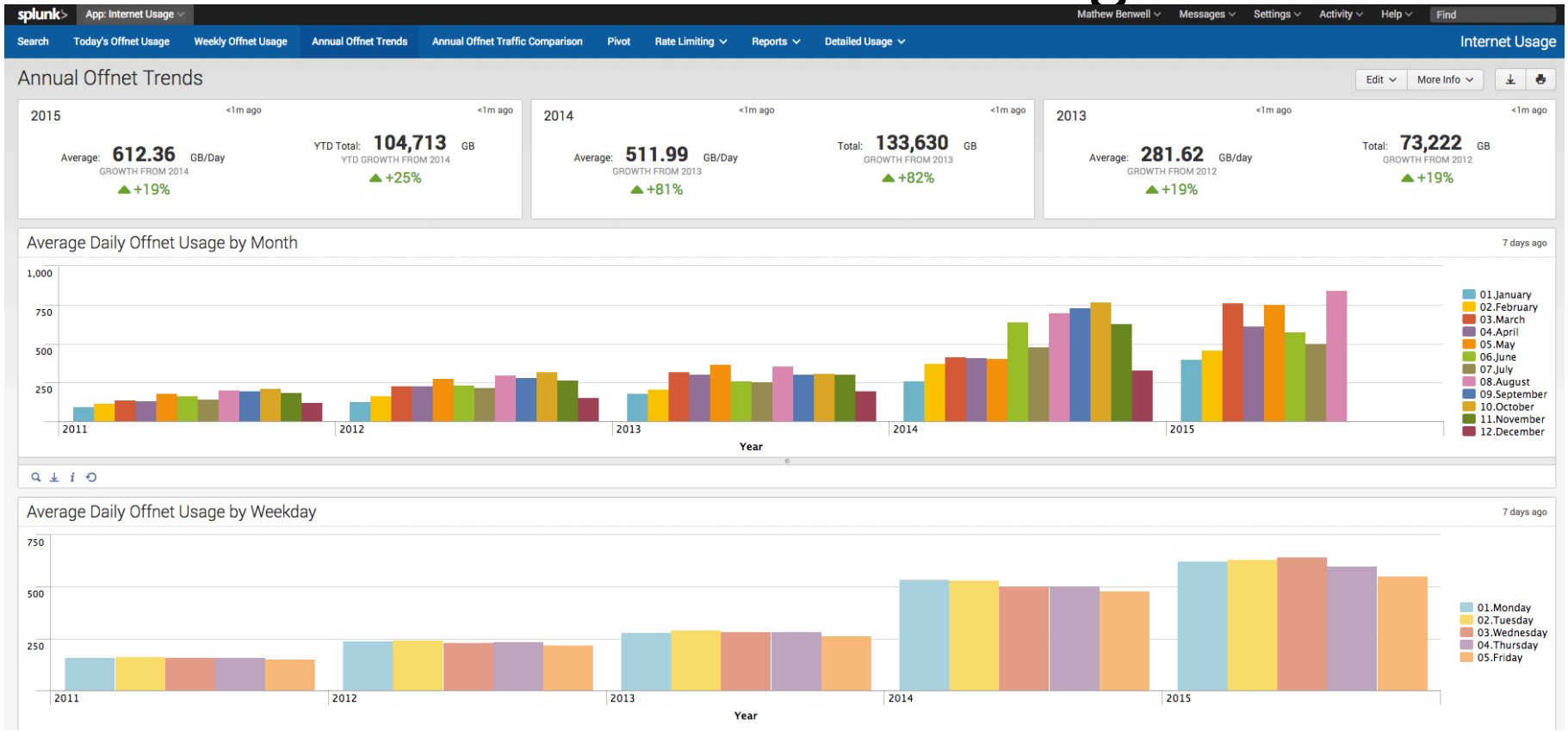
Internet Accounting

- In Australia we are charged for Internet data consumption
- Quota system used previously to control cost
- Quotas removed in 2014
- To help track and control cost we use Splunk

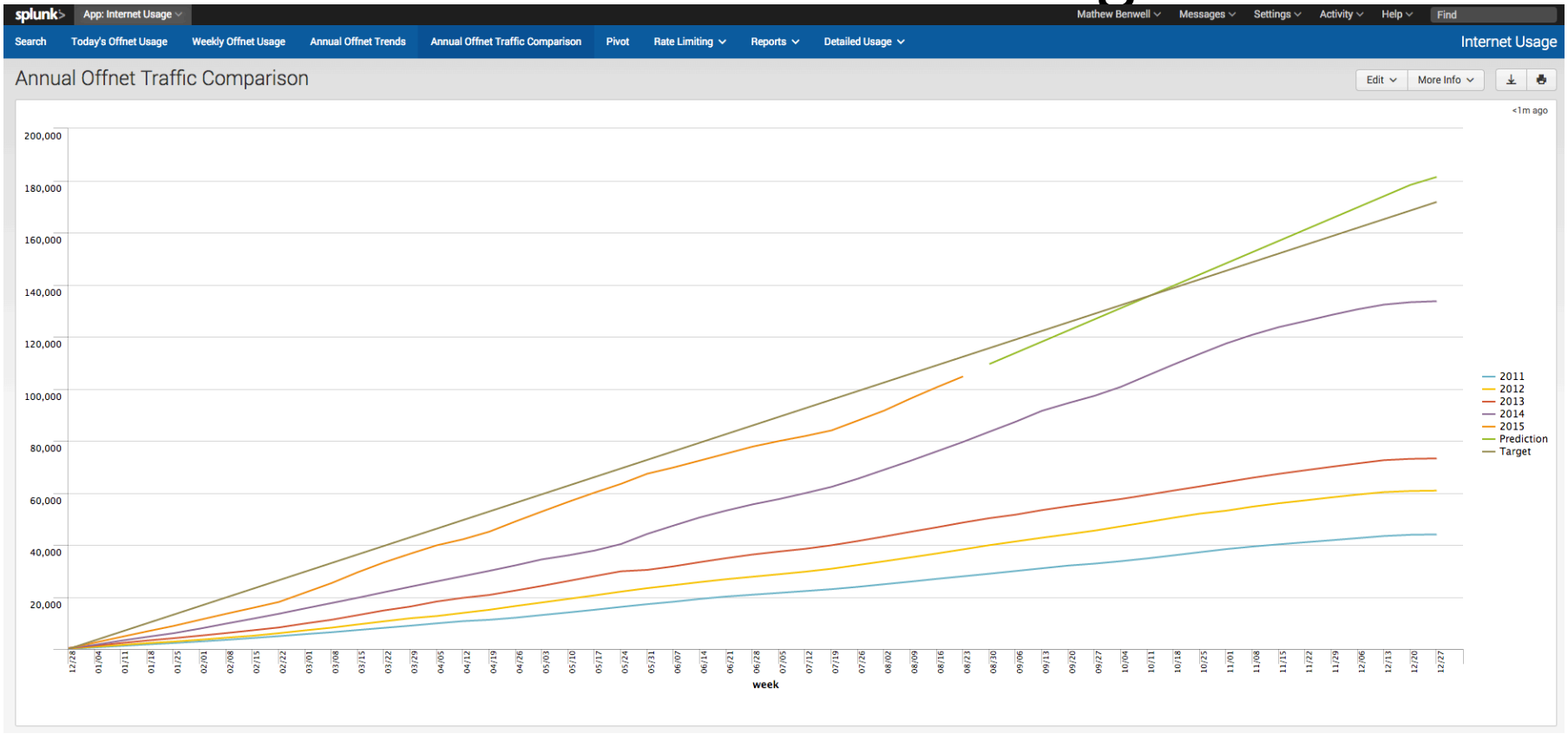
Internet Accounting



Internet Accounting



Internet Accounting



How Did We Build It?

1. Start with the question
   - What did we need to know?

2. Simple use case development

3. Identify supporting data sources
   - Firewall data
   - Unmetered address data

4. Get Splunking
   - Summary indexing used
   - Custom script for metering calculation
   - Extended use of Palo Alto Networks API

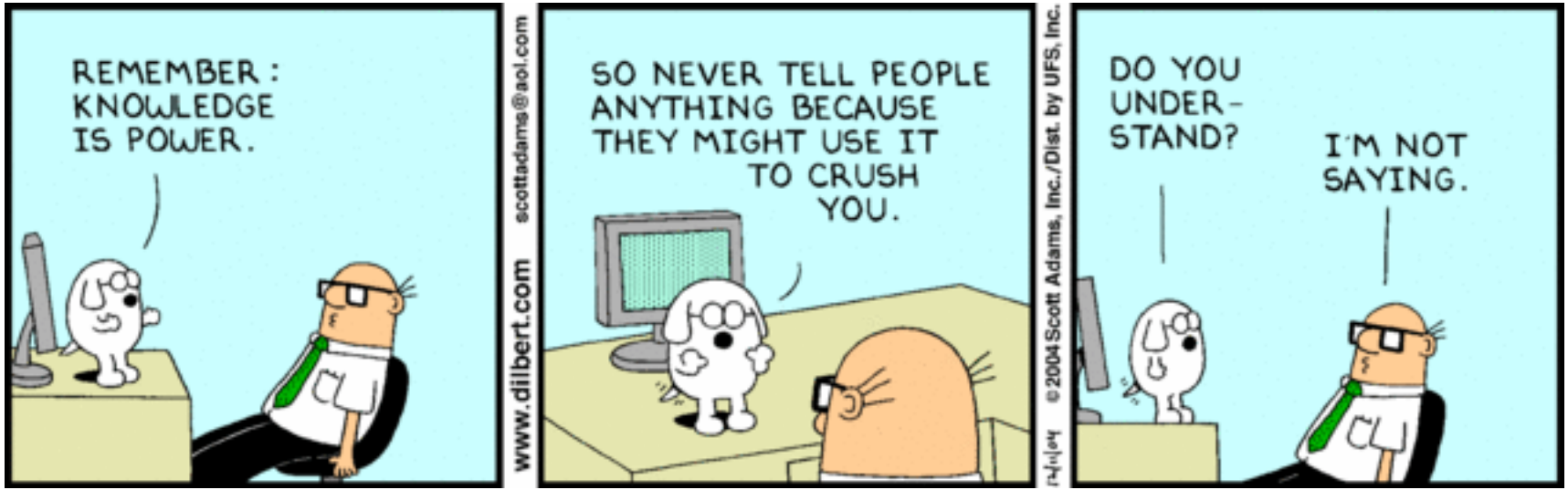
Internet Accounting - Outcome

- We know precisely where we are incurring charges

- We are helping to control cost

- No cost, we already have the data for Security

Computing Suite Utilization



Computing Suite Utilization

splunk> App: Computing Pool Usage | Mathew Benwell | Messages | Settings | Activity | Help | Find

Computing Pool Utilisation Summary | Application Usage | Computing Suite Usage | Matlab Adapt vs desktop | Search | Computing Pool Usage

Application Usage

The following data represents the amount of time between a process start event and a process termination event. The data is also limited to a predefined set of process names that we wish to monitor

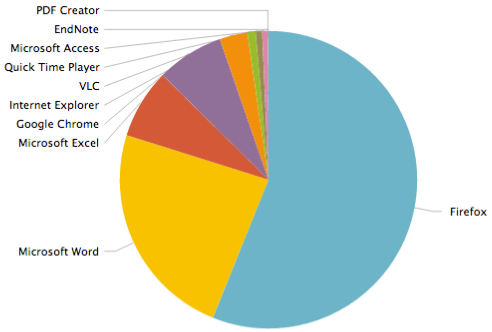
Edit | More Info

Suite

Today | HUBL4W | Submit

Application Runtime

<1m ago



Number of Times Application has Run

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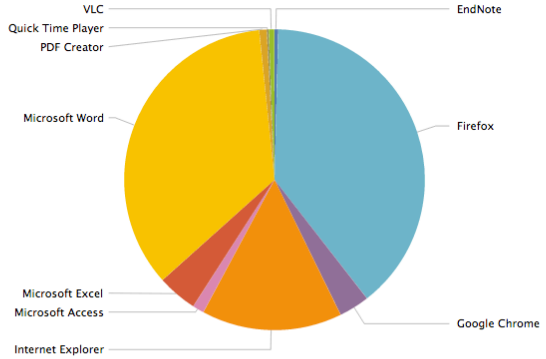
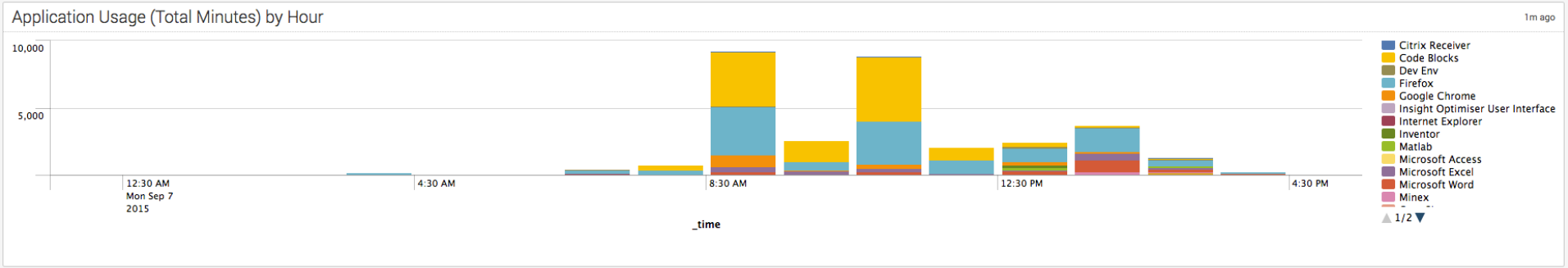
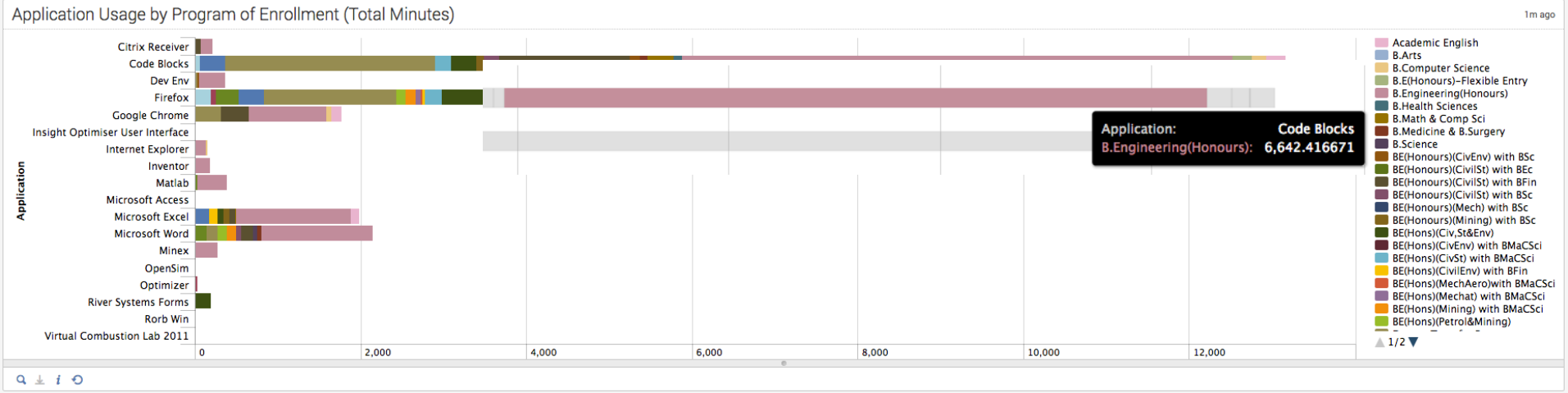
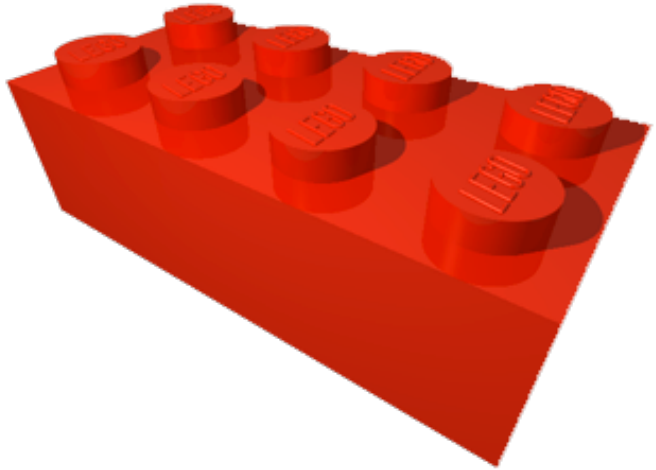


Computing Suite Utilization





How Did We Build It?



1. Start with the question
   - What did we need to know?
2. Simple Use case development
3. Identify supporting data sources
   - Windows process auditing
4. Get Splunking
   - Only tracking processes started by explorer process
   - Windows event log forwarding

Computing Suite Utilization - Outcome

- Team now has visibility to make decisions using real information

- Security team has another useful data source. Think IOC's

- Small cost (5-10gb/day)

Awesome Stuff Not For IT

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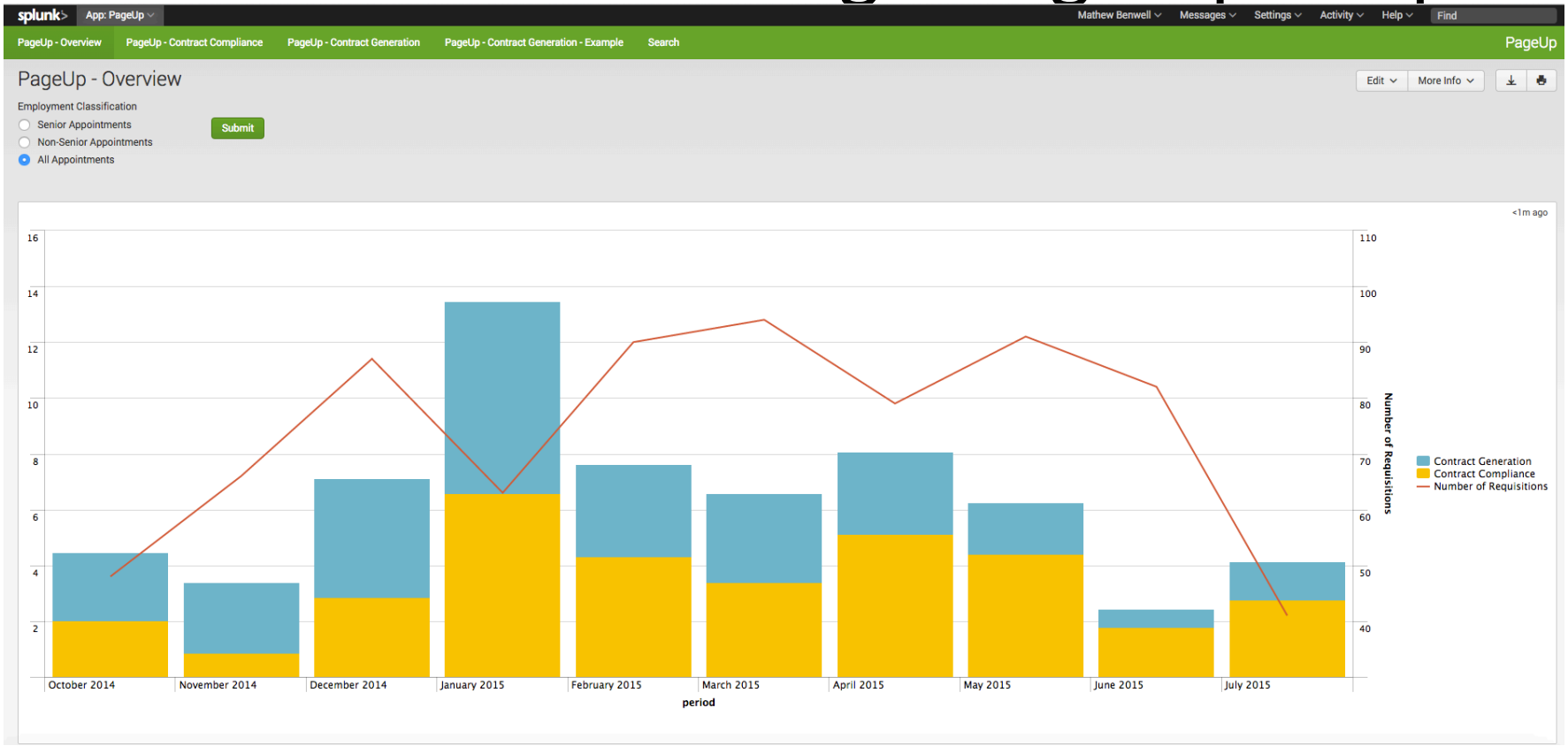
The Awesome Stuff

- Physical space reporting
- Project financial reporting
- Learning management system reporting
- Human Resources contract processing (PageUp People)
- Casual staff timesheet payment system (In house system)

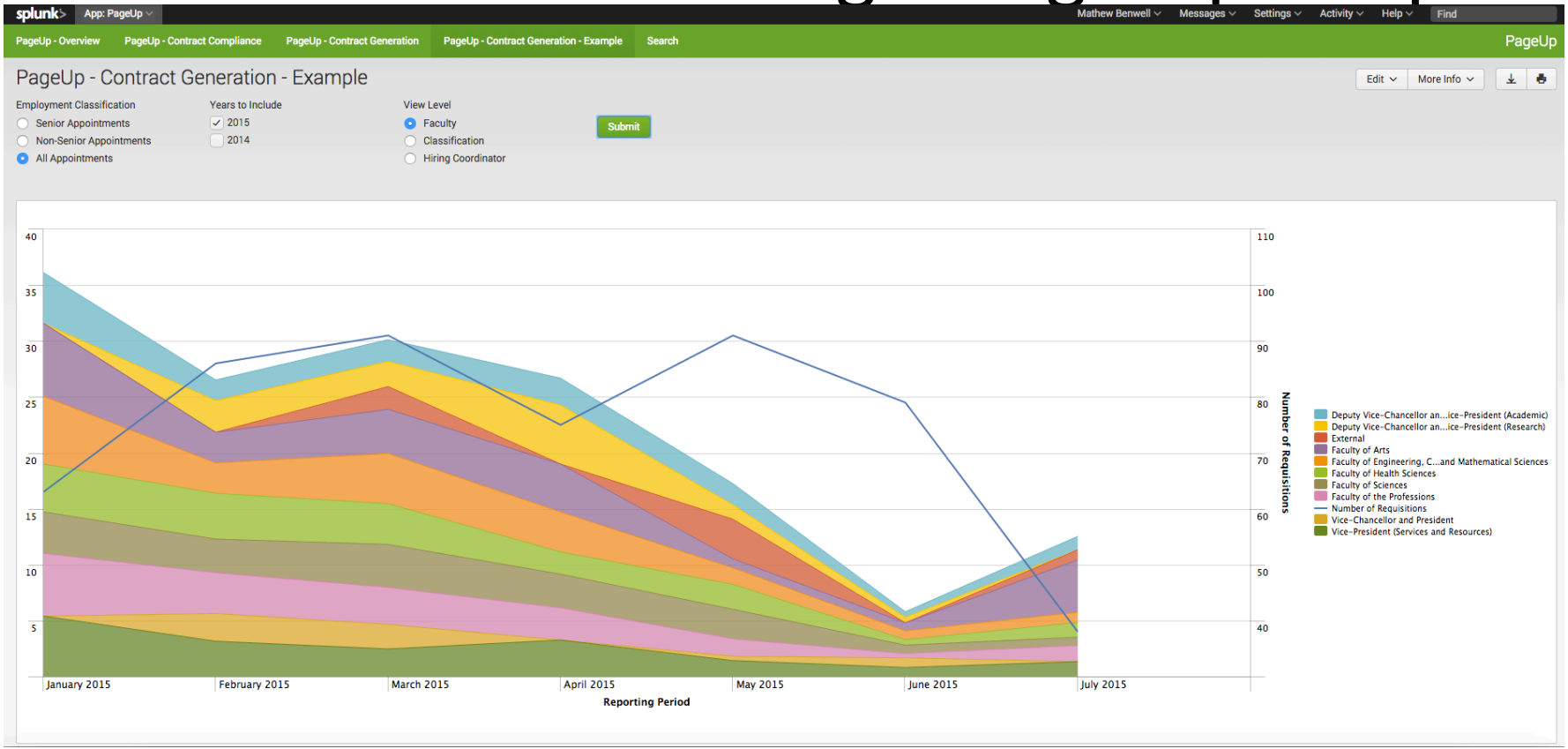
HR Contract Processing– Before Splunk

- Manual report extracted from PageUp
- Data massaged using Microsoft Excel
- Charting performed in Excel

HR Contract Processing – Page Up People



HR Contract Processing – Page Up People



HR Contract Processing - Outcome

- Report generation is automated

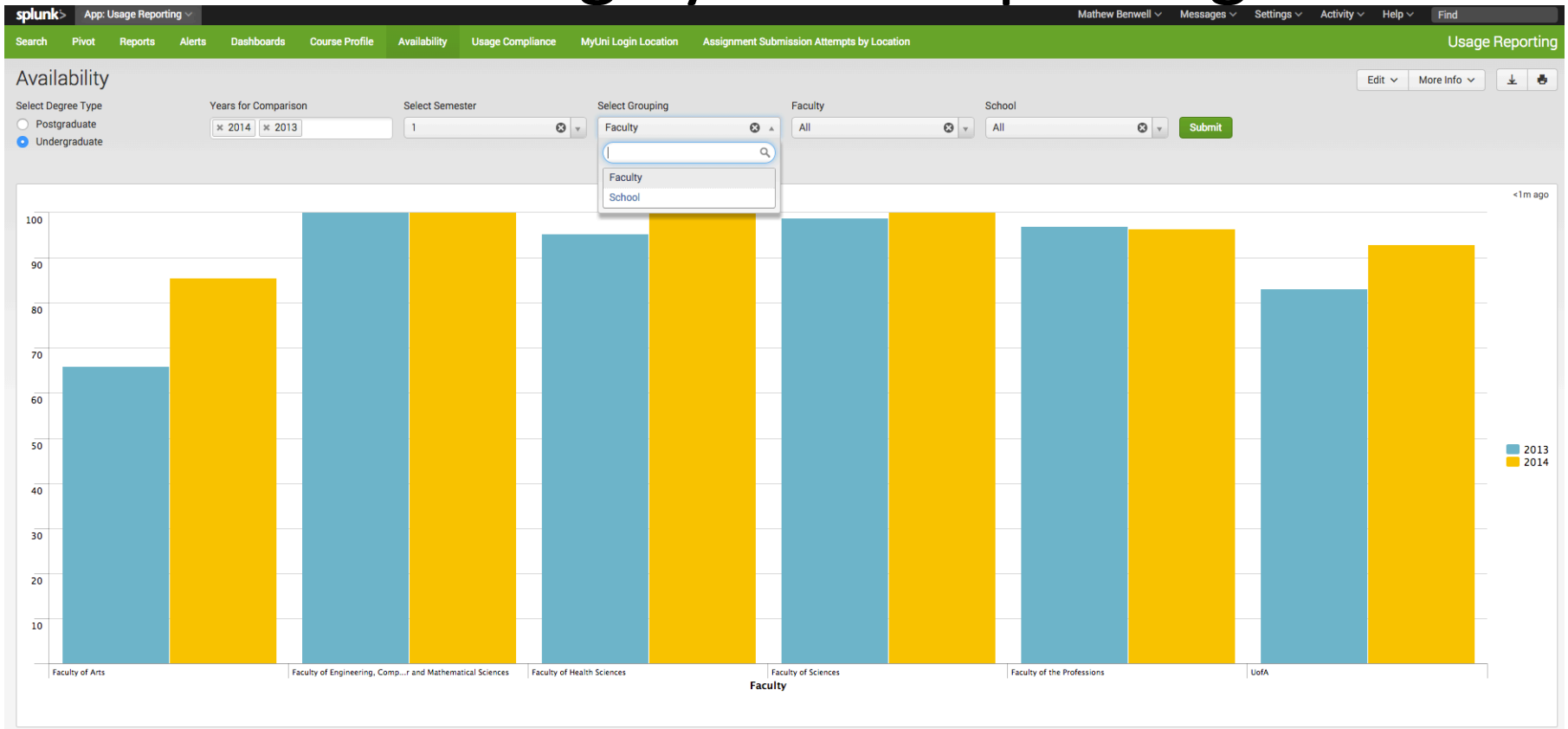
- Human Resources manual processes can be reduced, saving time and effort

- Virtually no cost

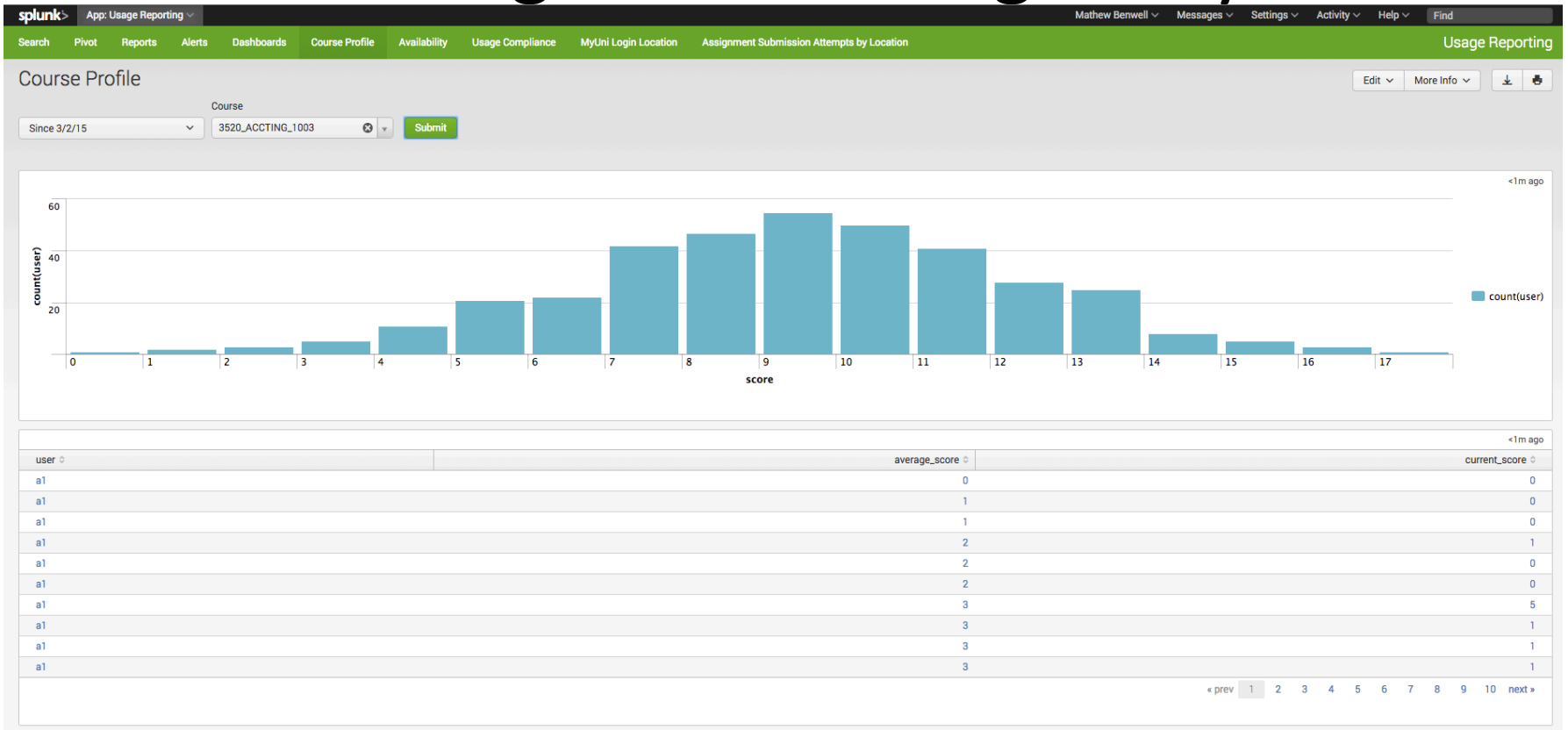
Learning System Reporting – Before Splunk

- Basic content reporting
- Team extract data from Oracle database
- Data is massaged into a usable form using Microsoft Excel
- Excel charts are copied into a Word report

Learning System Reporting



Extending into Learning Analytics



Learning System Reporting - Outcome

- Learning management team are developing their own analytics capability

- Reduce time and effort

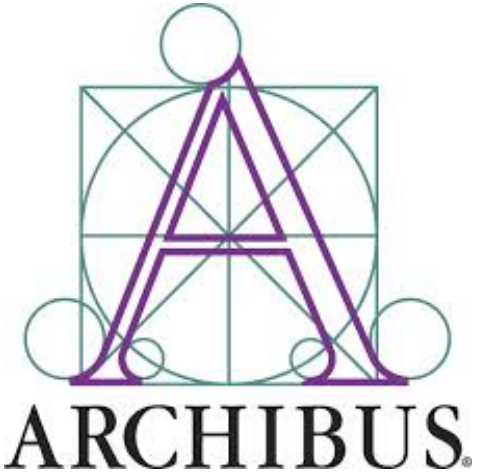
- Virtually no cost

Space Reporting – Before Splunk

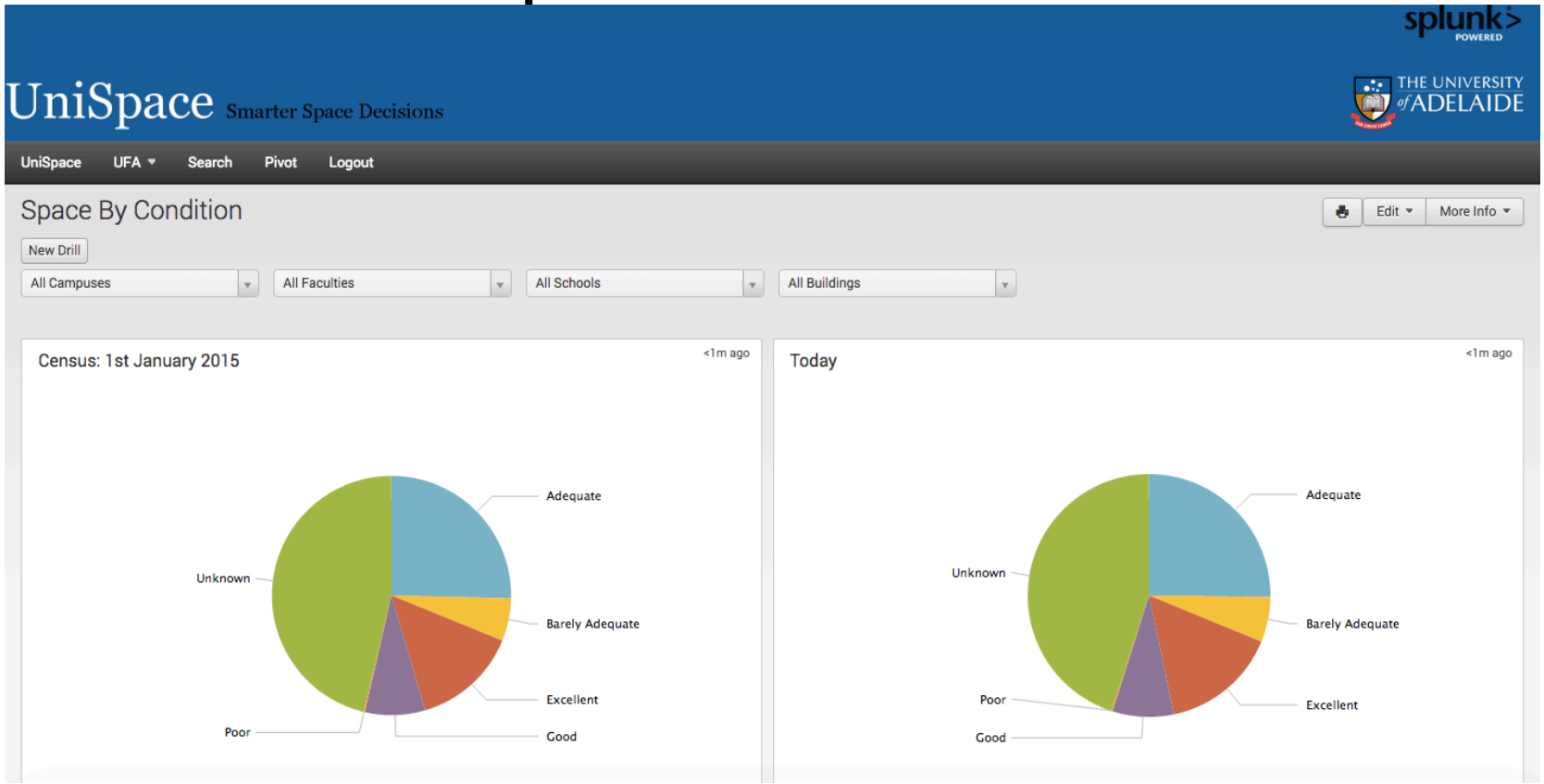
- School/Faculty managers request space allocation report
- Space Planning team extract data into CSV/Excel
- School/Faculty managers generate their own reporting

Space Reporting – Where Does Splunk Fit

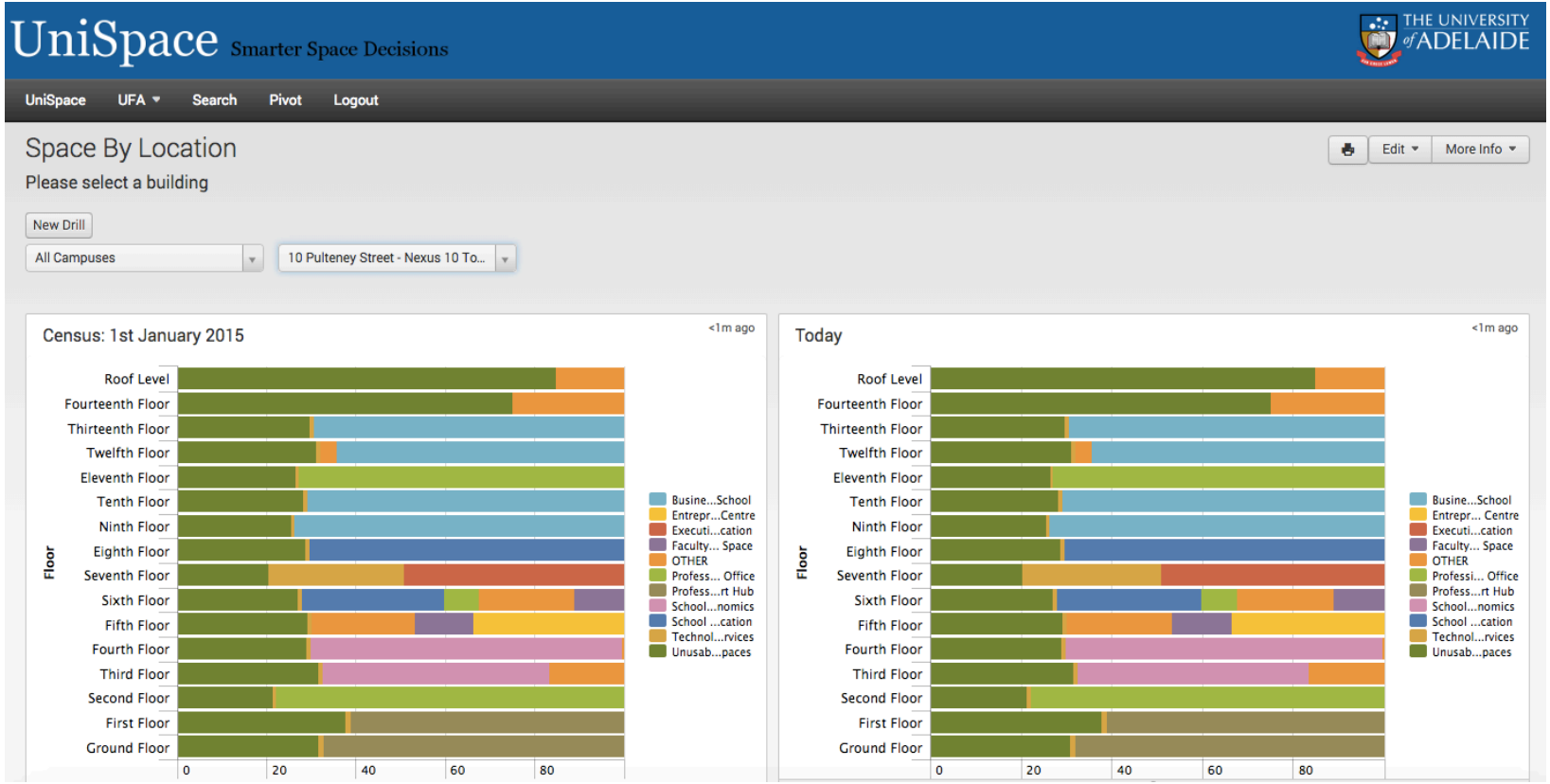
- Archibus Software - Facilities Management
- Splunk DB Connect
  - Nightly data feed from Oracle
- In-house Developed Splunk App
  - Dashboards - In-page Drilldowns
  - Side By Side direct comparison of change over time



UniSpace Dashboards



UniSpace Dashboards



A Quick Demo

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How Did We Build It?

1. Start with the question
   - What did we need to know?
2. Use case development
   - User flow diagrams (Storyboards)
3. Identify supporting data sources
4. Get Splunking
   - Macros heavily used
   - In-page drilldown script

Space Planning Reporting - Outcome

- School/Faculty managers have on demand access to the latest data
- No time requirement for Space Planning team
- Virtually no cost (25mb/day)

What Does the Future Hold?

- Continue to extend Splunk use
- More advanced Learning Analytics
- Increased space planning capabilities
  - Include fine grained occupancy data
  - Including charging data
  - Including facility capability
- Teaching area utilization (Lecture theatres)

Take-Aways

- Most Importantly: Don't think of Splunk just as an IT tool
- Splunk can be used for a lot of things
- Use a structured approach, starting with the question you want to answer
- Stick to the Splunk Common Information Model (CIM)
- Build a community within your organization

THANK YOU

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