Keeping Your Medical Center CIO Engaged

Using Splunk to increase real-time IT operations transparency and create insights into clinical/patient data

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Agenda

- Michigan Medicine (at University of Michigan)
- Splunk Deployment at Michigan Medicine
- A use case for CIO
- Other use cases
- Next Steps
Michigan Medicine
At University of Michigan
Michigan Medicine
Formerly University of Michigan Health System

PATIENT CARE

RESEARCH

EDUCATION

Michigan Medicine Hospitals ranked No 6 in US (U.S. News “Best Hospitals” 2017-18)
Michigan Medicine
Who we are and what we do…

- 3 Hospitals (1,000 Beds)
- 26,000 Staff
  - 2,700 Faculty
  - 5,000 Nurses
  - 1,200 House Officers
  - 708 Students
- 40 Outpatient Locations
  - 120 Clinics
- Outpatient Visits – 2,320,254
- Inpatient Discharges - 48,793
- ER Visits – 104,219
- Surgical Cases – 54,342
- Deliveries - 4,400
- Survival Flight Visits – 1,227
The Use Of Splunk

at Health Information Technology & Services
Splunk Architecture

- **Data Centers**: 2
- **Indexers, each**: 10
  - 20C/64G/6T
- **Search Head Clusters**: 2
- **Users Per Day**: 50
- **Concurrent Searches**: 20-50
CIO Dashboards

A Splunk Use Case for CIO real-time single pane-of-glass
Project Summary: Display multiple clinical and IT dashboards in a single display

Project Goals: Expose Michigan Medicine Leadership to real time, actionable data regarding IT and Clinical Operations to demonstrate the power of dashboards and analytics

Business Values: “Wow” factor aside, attract visitors attention, funding and collaboration opportunities

Hardware:
- Standard managed PC
- 4k monitors

Additional Software:
- Windows Manager
- Display Fusion
Michigan Medicine CIO Office
Michigan Medicine CIO Office
Project Team

Project Manager
- Coordinated efforts with all stakeholders
  (Liz Lind)

Technical Team
- Figured out technical solution to divide single monitor into multiple dashboards and how to operate that solution

Content Team
- Coordinated with our existing dashboard owners to select and display content

AV Team
- Set up PC, speakers and monitor
Overview Of What We Did

- **Non-Splunk dashboards:**
  - Epic Executive Dashboard
  - Epic Monitor
  - Alertwatch
  - Business Objects
  - Tableau
  - Aspect real-time monitor

- **IT/business related dashboards:**
  - Remedy Ticketing
  - Huddle board
  - Major Incident
  - Sitescope

- **Clinical/Research related dashboards:**
  - Diabetes Registry
  - NIH word clouds
  - Epic User geotagging
  - Epic patient geotagging
Remedy Dashboards

- Challenges
  - Unified service delivery view

- Business Impact
  - Continued high level of customer service and optimized customer experience

- Data Sources
  - Remedy data using DBconnect 1.x
    - Full incident database snapshot every night
    - Tail for updates
Major Incident/Sitescope Dashboards

► Challenges
  • Lack of operational visibility

► Business Impact
  • Real-time insights into major outages and IT operational health

► Data Sources
  • Microsoft Exchange
  • HP Sitescope logs
  • Operational Status
National Institute of Health (NIH) Grants Dashboards

▶ Challenges
• Lack of visibility into NIH grants

▶ Business Impact
• Quick access and insights into NIH Data

▶ Data Sources
• NIH grants data
Diabetes Registry

- **Challenges**
  - To visualize population health data

- **Business Impact**
  - Easy to visualize population health data

- **Data Sources**
  - Diabetes registry
Challenges

- Required to comply with PCI mandates
- Needed to ensure continued superior customer experience
- Inefficient processes for data analysis

Business Impact

- Operational efficiencies
- Enhanced PCI compliance

Data Sources

- Web server data
- Firewall data
- IPS data
Michart(Epic) User Access

► Challenges
• Determining Epic availability

► Business Impact
• Improved customer satisfaction

► Data Sources
• Epic Cache database
  Access logs
• Inventory Database
• Building/latitude/longitude
Dashboard Challenges
What we spent a lot of time figuring out....

▶ How to launch 18 programs at one time in the right order?
▶ How to authenticate to 18 programs?
▶ How do we handle PHI that is displayed?
▶ How do we handle the auto time outs on both the hardware, display software and dashboards?
▶ How do we test these dashboards?
▶ How do we load our Epic dashboards?
▶ How do we keep track of changes on these 18 dashboards?
▶ How can we do this work remotely?
Network Admission Control

- Challenges
  - Streamline Wired/Wireless NAC deployment across the enterprise

- Business Impact
  - Operational visibility during NAC deployments

- Data Sources
  - Inventory
  - Cisco ISE data/Prime data
  - NAC portal logs
  - Airwatch Server data
  - Remedy data
Use Of Dashboards During NAC Go Live
Email from our CIO to our C-Level executives

► NAC go live went very well today. This was the culmination of 19 months of work!

► As you can see from a screen shot of our real-time analytics, we were close to 20,000 unique users by end of day. (As an aside, the use of these real-time data/analytics tools are great examples where we could use them and other tools for our other clinical/operations.)

► Andrew
Next Step

- We picked some important components, and we are moving forward to a more service oriented, hierarchical organization of information in Splunk.
  - Move forward with ITSI
- We need better ways to condense information
  - Dashboard tools such as mozaik allows auto layering of dashboard screens
- Use Machine Learning to identify/predict failures (Michart User access)
Thank You

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