How MD Anderson Cancer Center Uses Splunk to Deliver World-Class Healthcare

Ed Gonzalez and Jeffrey Tacy

The University of Texas MD Anderson Cancer Center

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Making Cancer History

Guadalupe Gonzalez - 1930-2007

Agenda - Improving the Patient Experience
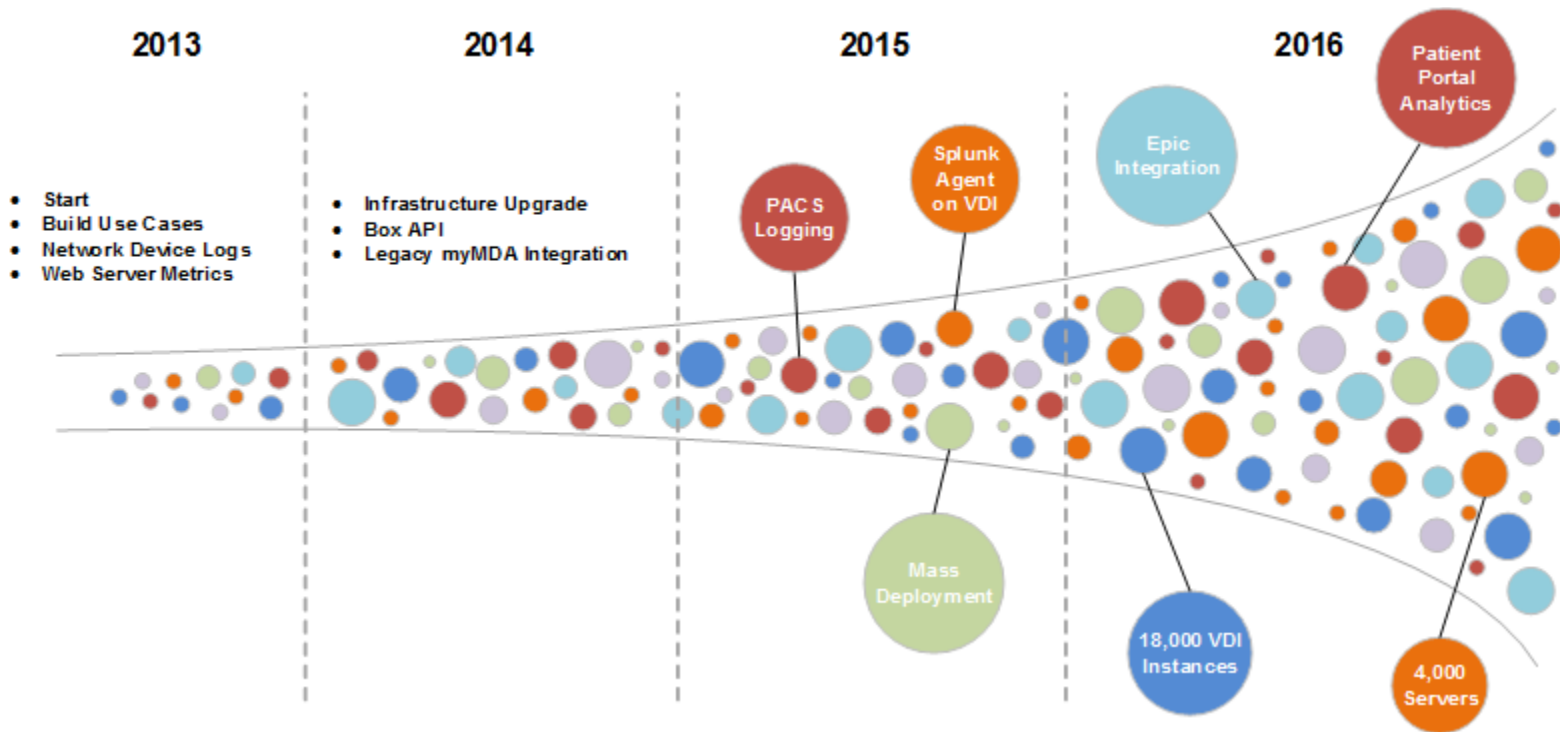
Business Drivers & Strategy

- Milestones & Landscape
- Road to the Patient Experience
- Leveraging Splunk with Electronic Health Record
- 4 Steps to Build Upon

Technical Approach & Results

- Patient Experience with Splunk
- myMDAnderson with Splunk
- IT Ops at Scale
- Future Splunk Healthcare Initiatives

# Milestones & Landscape

2013
- Start
- Build Use Cases
- Network Device Logs
- Web Server Metrics

2014
- Infrastructure Upgrade
- Box API
- Legacy myMDA Integration

2015

2016

PAC S Logging

Splunk Agent on VDI

Patient Portal Analytics

Epic Integration

Mass Deployment

18,000 VDI Instances

4,000 Servers

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Road to the Patient Experience

Use Cases
- Small Wins
- IT Operations Solutions

Patient Portal
- 230,000 Patients

Electronic Health Record
- Multi-million dollar project
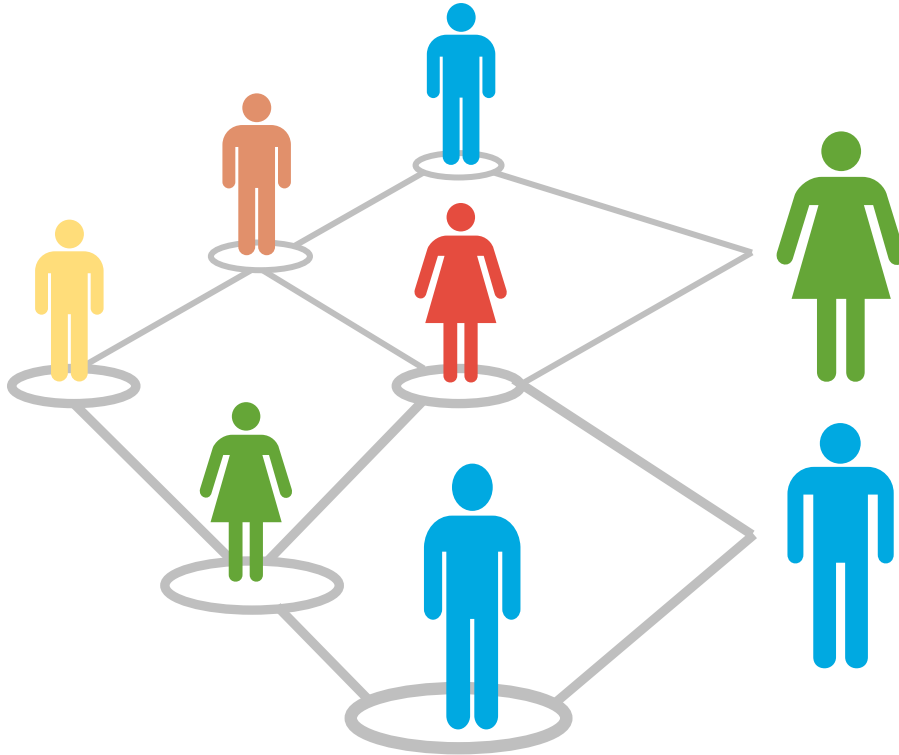
Leveraging Splunk with EHR

Before

- Log data locked up in silos
- No broad application insights
- Rigid logging schemas
- Inflexible alerting features
- Limited real time analysis

After

- New myMDA, myChart & legacy logging
- Splunk as HIPAA solution
- Broader real time patient tracking
- EHR system wide logging
- 18,000 VDI instances logging
- Application & System real time analysis

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4 Key Steps to Build Upon
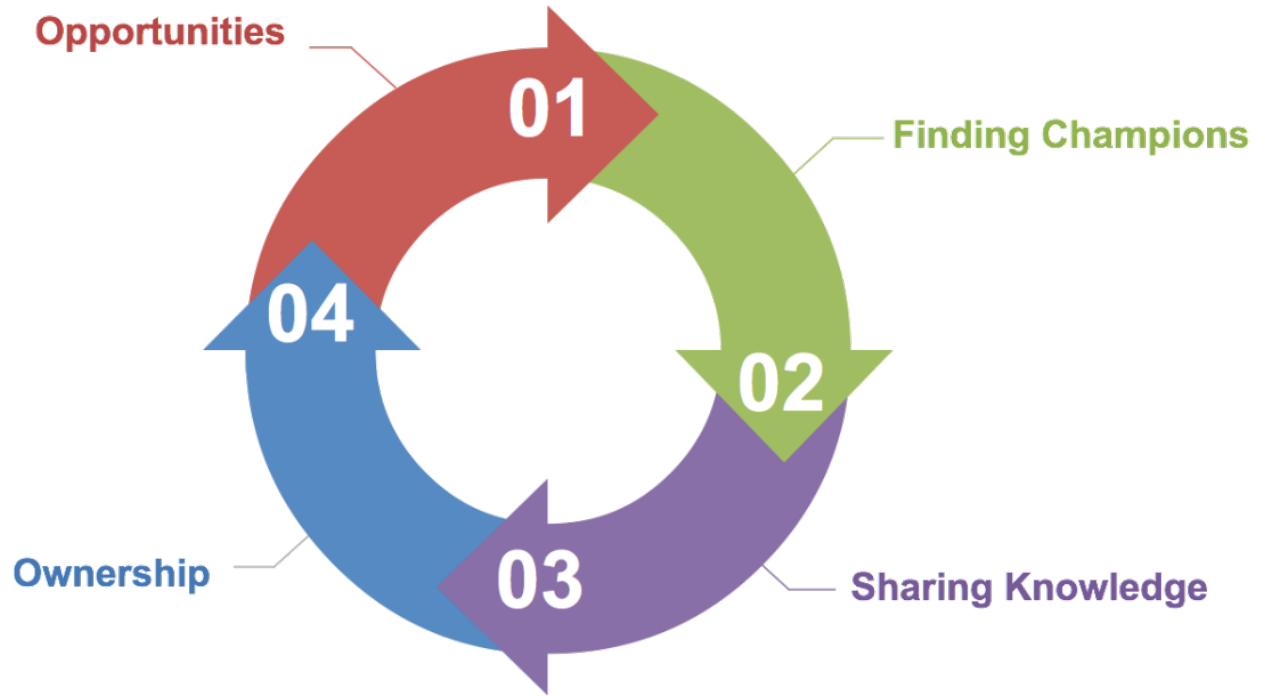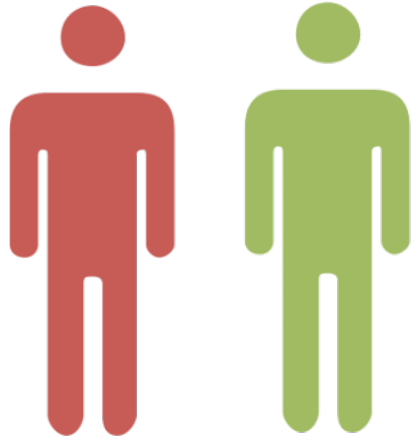
Technical Approach & Results

Patient Experience with Splunk

Expanded Application Auditing Functionality

Improved Patient Support

Deployment Insights

Better System Integrity & Monitoring

myMDAnderson with Splunk Today

14,000 **Average daily users**

New Design
- Integrated with Epic myChart
- Shifted Audit log to Splunk

Expanded Integration
- Combined network and Epic logs

Log Metrics
- Windows events and server metrics
- Application exceptions and debug

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myMDAnderson Patient Activity

Logins Over Time by Type
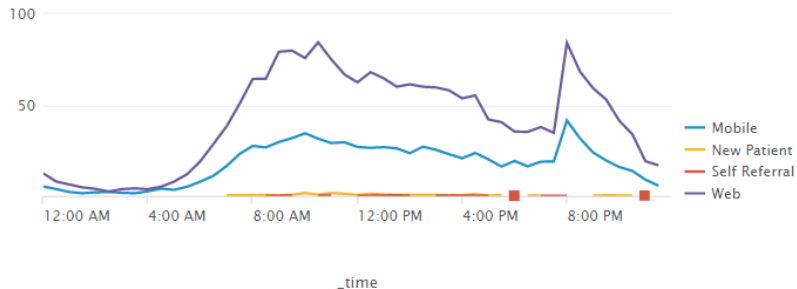
Total Logins by Type

Login Type ⇕	count ⇕
Mobile	852
New Patient	16
Self Referral	4
Web	2004

Application Server CPU Usage
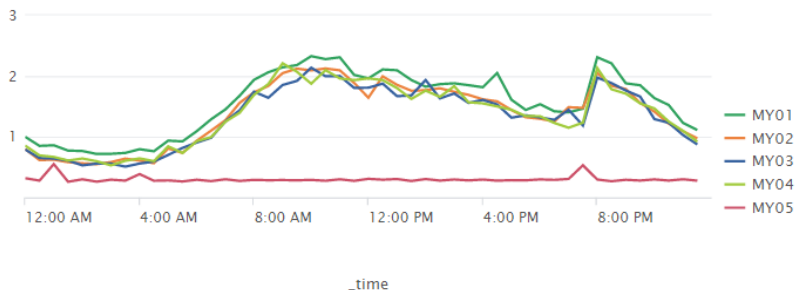
Top 10 App Actions

action ⇕	count ⇕	percent ⇕
PageView	61837	84.048453
MyChartPageView	7002	9.516742
LoginSuccess	2876	3.909416
Logout	1293	1.758077
LoginFailed	455	0.617801
ForgotPassword	44	0.059986
PasswordReset	27	0.036245
LoginLockedOut	15	0.021022
LoginPasswordReset	6	0.007974
UserDetailsViewed	5	0.006887

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Splunk EHR Footprint

18,000 **Hosts in Splunk**

VDI Instances **Network** **EHR** **Data Center**
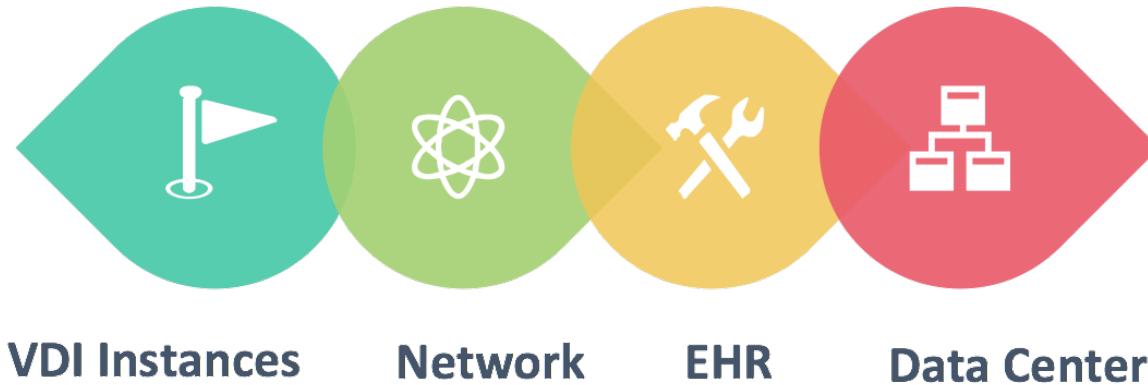
IT Ops at Scale - Virtual Desktops
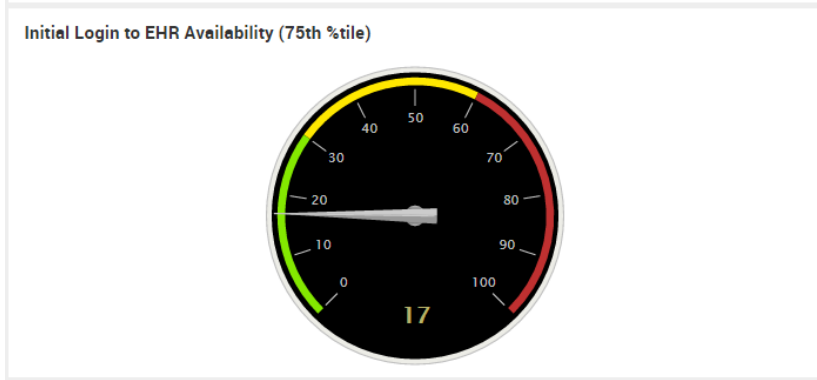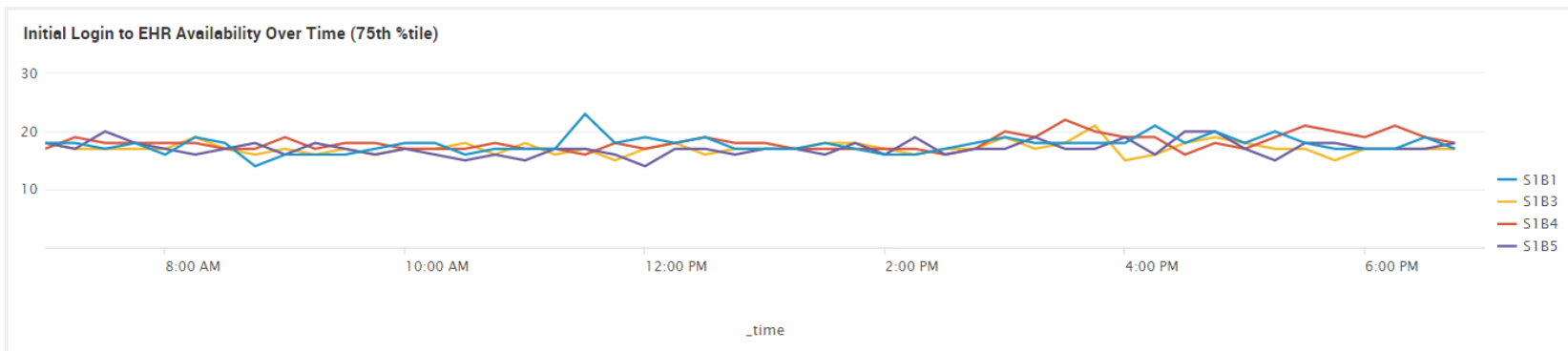
Future Splunk Healthcare Initiatives

Clinical Solutions

Patient Billing footprint

Architecture upgrades

RFID Integration

Splunk for Mobile Applications

Big Data – Vital Signs

Business Transaction Analytics

IT Operations – Service Desk

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Conclusion - Patient Experience with Splunk

- Vision
- Ownership
- Partnership
- Opportunities
- Build Wins