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# An Enterprise as Nimble as a Fighter Jet

## Building the Instrumented Enterprise at Lockheed Martin

Robert Frazier | Senior Manager for Cyber Architecture

Date | Washington, DC

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# Introduction

- What is an instrumented enterprise?
- How we started out
- Hurdles to Implementation
- Building the Instrumented Enterprise
- Digital Transformation

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# What is an Instrumented Enterprise?

SPAD VII (single logs)

Modern Aircraft (Splunk >)

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# In the beginning....

- Splunk for logging
- Core Splunk for security correlation
- F-35 program (https://www.splunk.com/blog/2015/04/08/splunk-lockheed-f-35-lightning.html)

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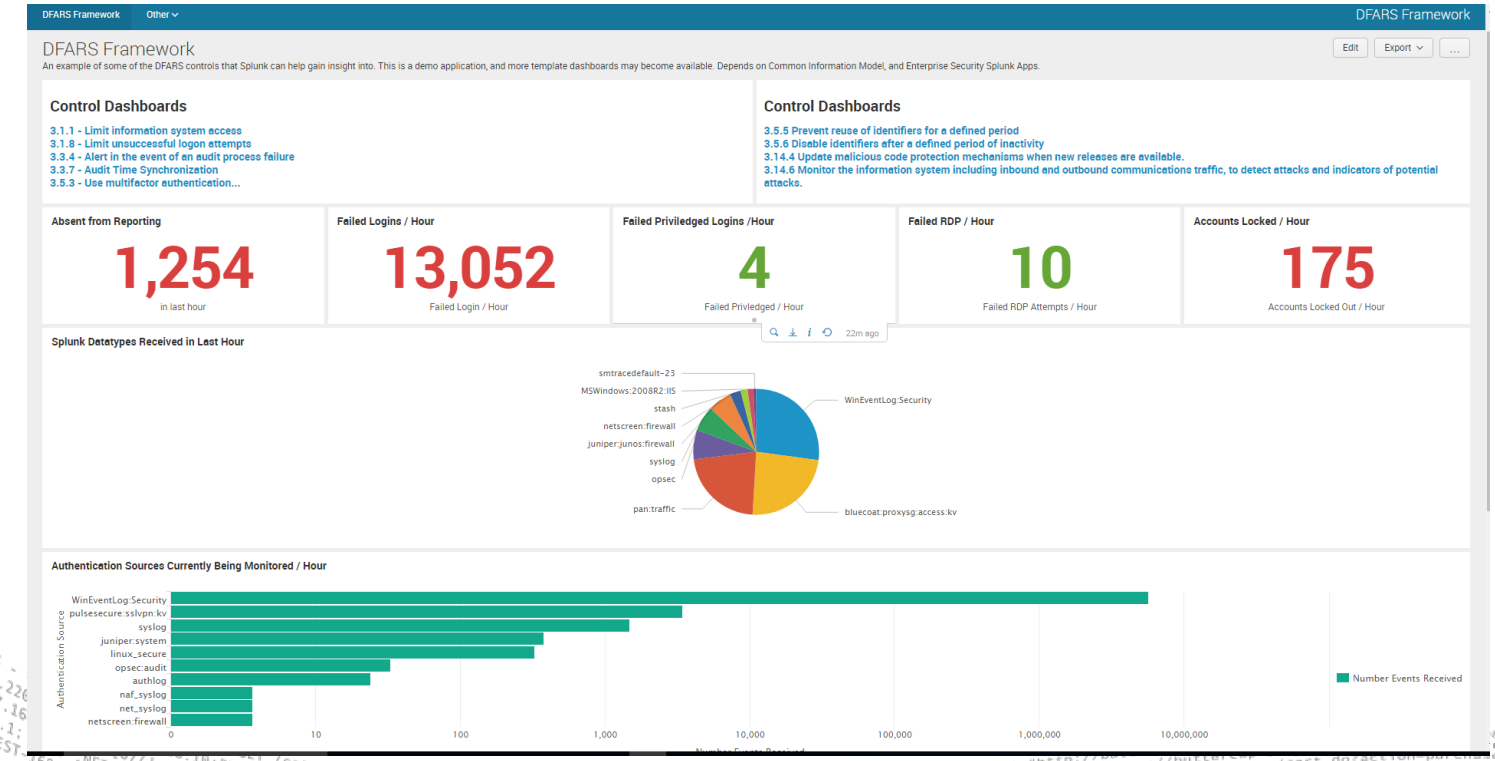
# Then Came DFARS

- Systems with Defense Information had to be logged
- Data from logging started being useful in other areas
- Lockheed Martin Security became interested




Splunk logging and reporting became the choice for DFARS compliance

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# Lockheed Martin CIRT

- World Famous Lockheed Martin Computer Incident Response Team (CIRT)
- Cyber Kill Chain
- Laika Boss
- International Reputation as a Security Thought Leader

**What could Splunk do to support top gun security?**

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# Splunk and Expanding the Knowledge Base

- Greater breadth of insight from broader range of collection
- More data points, more data correlation
- Splunk and CIRT tools side by side, greater insight
  - FISMA App
  - Machine Learning Tool Kit
  - Apps from Splunkbase
  - Home Grown Apps
- Splunk ES (under construction)
- **Splunk as a force multiplier**

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# Organizational Issues

- Who pays for what?
- Who owns the data?
- Who controls access to Indexes?
- Who decides?

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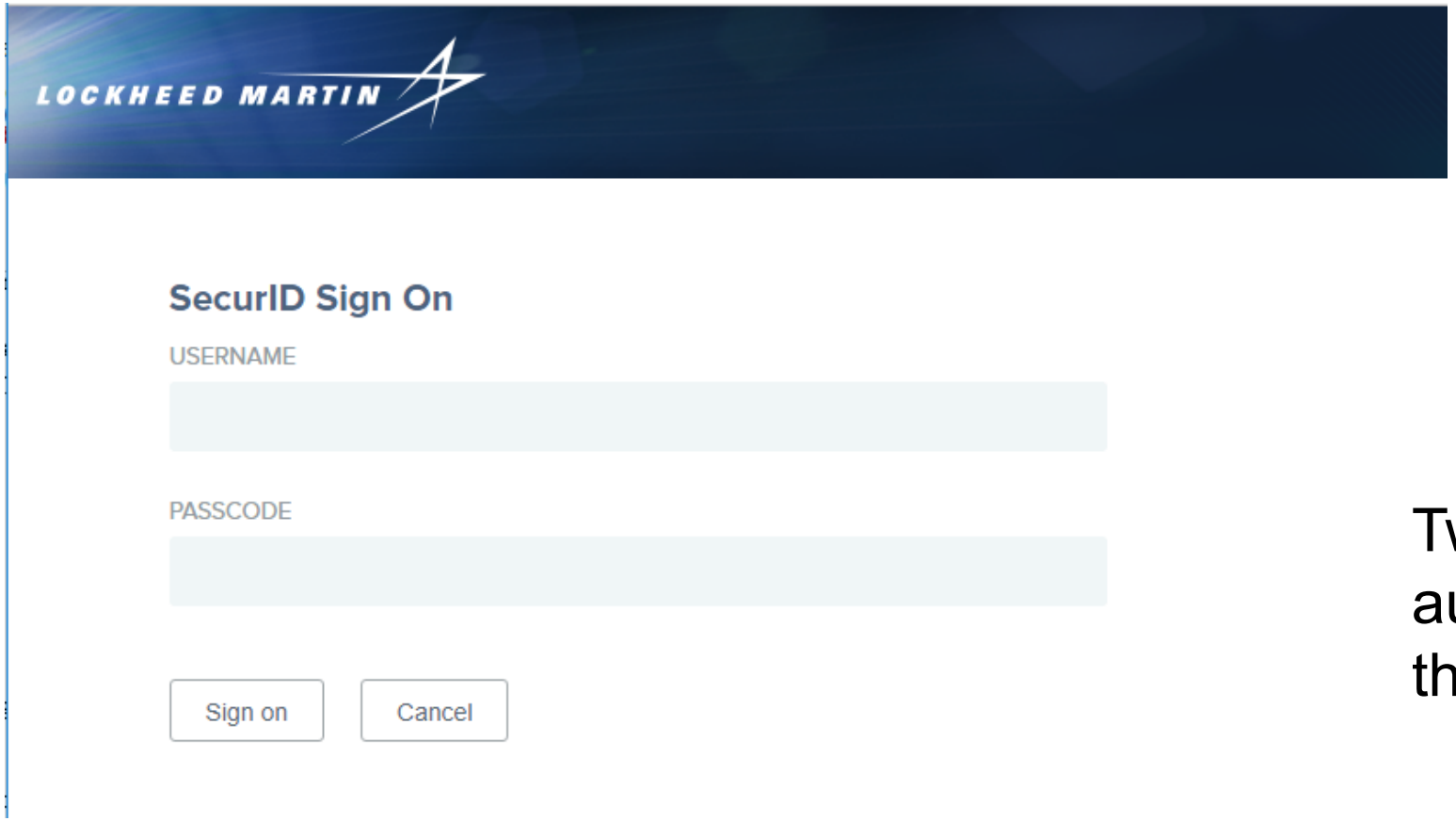
# Two Factor Authentication




Two Factor authentication to access the search heads

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# Who pays for what?

- Several Options
  - Use charge back system (cumbersome overhead)
  - Use licensing pools (distribute the per day license overrun risks)
  - Limit usage (innovation killer)
- Use per-seat tax
  - Providing IT services on a per seat basis (email, network, office applications, etc.)
  - Encourages “citizen data scientists”
  - Control data ingest at the Splunk administrator level
- Unlimited License
  - True up at end of the year (budget uncertainty, but encourages innovation)

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# Who owns the data?

- Splunk service owner ultimately owns all indexes and data
- Data generators, i.e. network, server, manufacturing, etc. co-own their data

- Bigger question: What data do you want in Splunk?
  - What kinds of knowledge do you need from your data
  - What kinds of data will provide that kind of knowledge
  - How much is needed to be ingested? All of it? Extracts? Parts of the logs?

- Requires finesse between data generators and Splunk administrators to balance cost and benefits, remembering that what is not collected is lost.

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# Who controls access to Indexes?

- Privacy concerns
- Security data
- Proprietary data
- Control by Indexes
  - Create user roles and access to indexes
  - Some roles may need access to all indexes (Security)
  - Other roles can be limited (just network, just manufacturing, etc.)
  - What indexes can your Apps see/use?
- Good Index, data, and knowledge object management helps control costs, indexing/search performance, etc.

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# Who decides?

- Organizational issue
- Splunk Drawback:  Easy to use and set up and get started
- Gartner:  develop a corporate data plan, collect data, choose analytics tool
- Which approach is more rational?
- Which do you think will be accomplished faster?

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# Splunking the Enterprise

- AWS (Government)
  - Splunk for AWS to manage our cloud infrastructure
  - Splunk is also on AWS
  - Used the AWS App and Splunk to look for ethereal machines and compliance
- Network
  - Manage network traffic and operations
  - Significant savings from mean-time to resolution, efficient use of resources, etc.
- ITSI
  - Newest installation
  - Under development to manage service infrastructure and supported business processes

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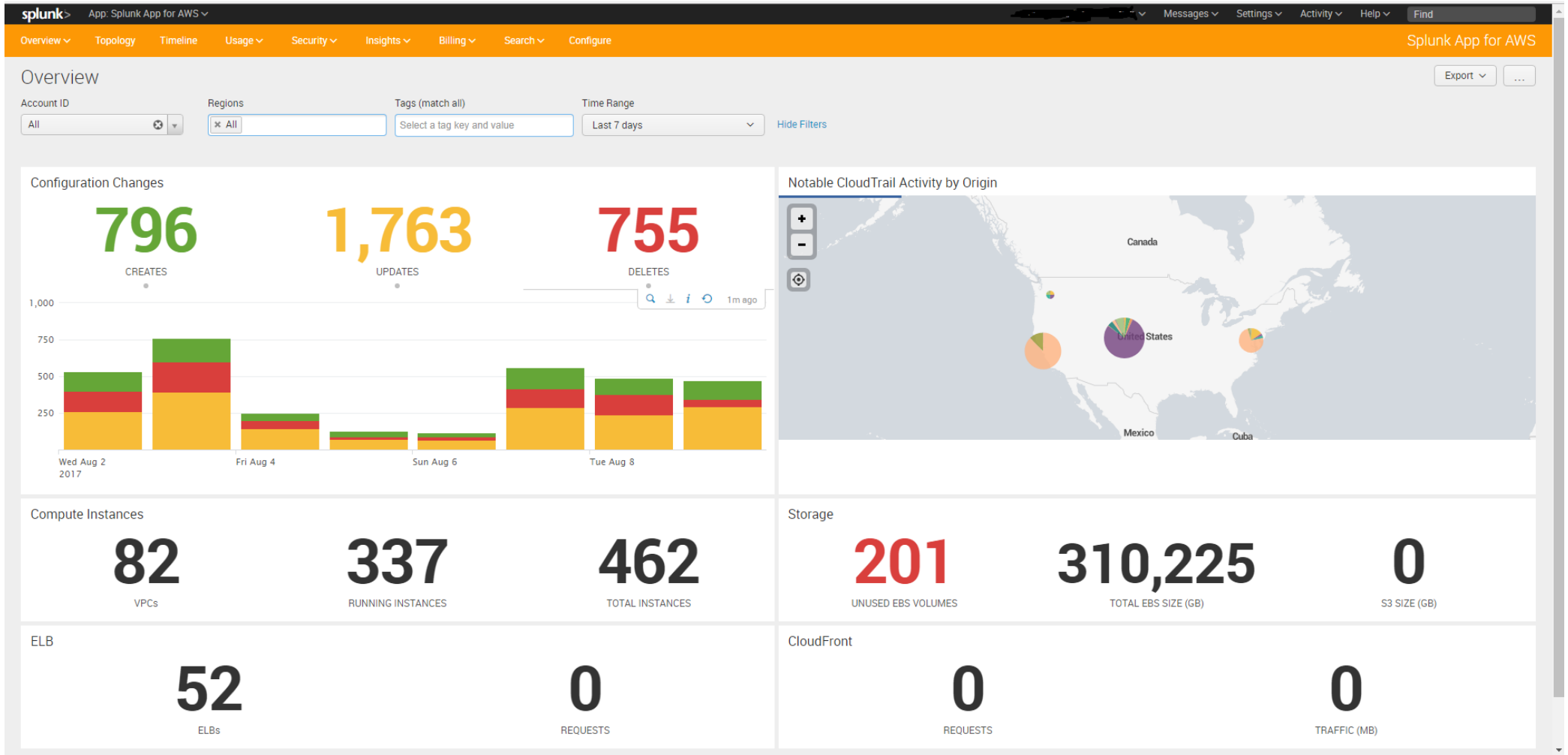
# AWS and Splunk

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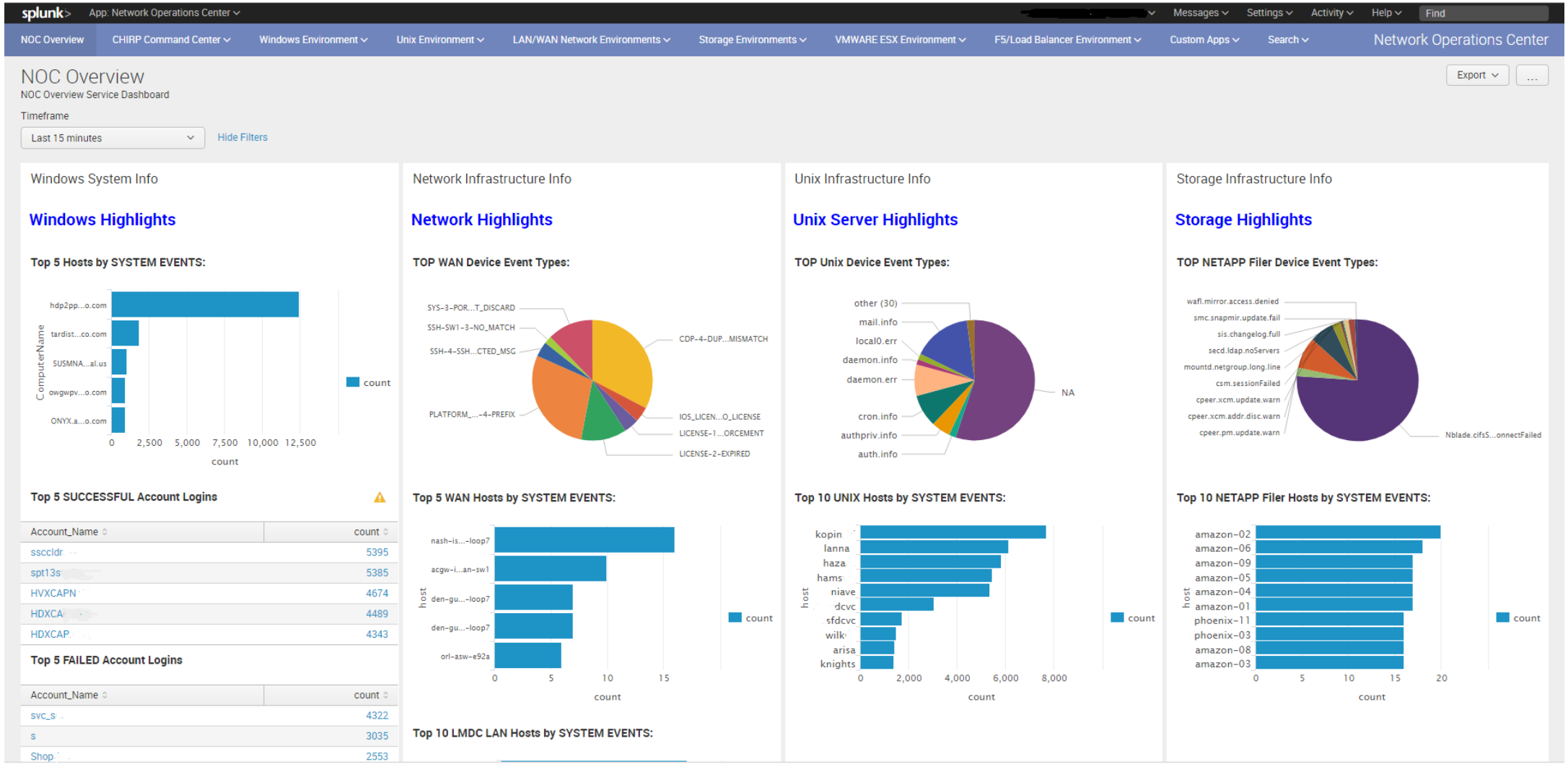
# Network and Splunk

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# Splunk is a data platform, not tool.

- Start small, plan for big, then expand.
- Like chess, keep planning two or three moves ahead
- Splunk **WILL** grow and expand. (You can quote me)

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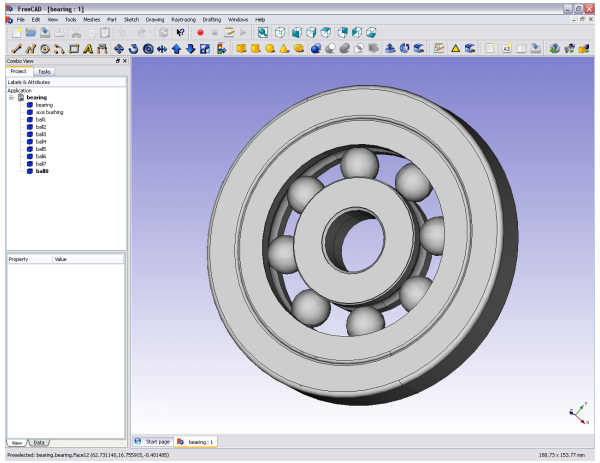
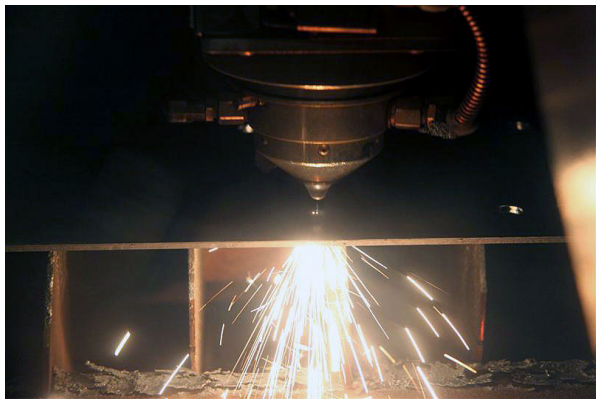
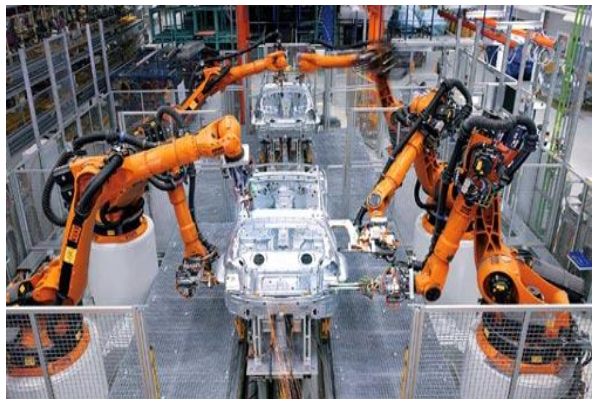
# Digital Transformation

- Data is Essential to Digital Transformation
  - Digital manufacturing
  - From Art to Part
  - Internet of Things
  - Operational Technology







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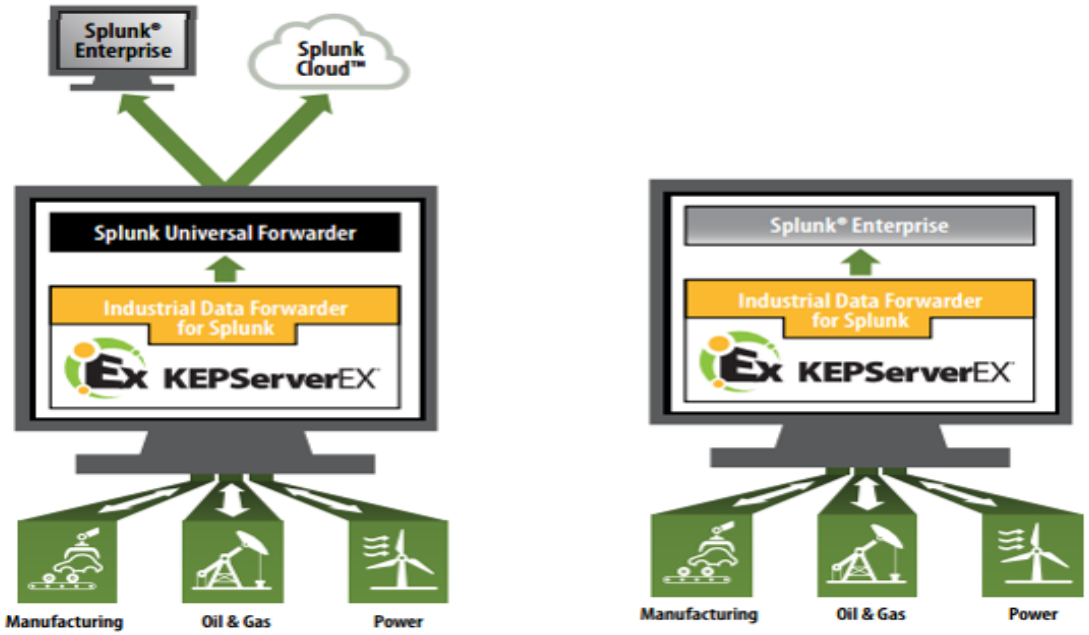
# Expanding the Knowledge Base

- Getting data from OT systems
- Using data from manufacturing to be more secure, plan for digital resiliency
- Using data to manufacture better, smarter

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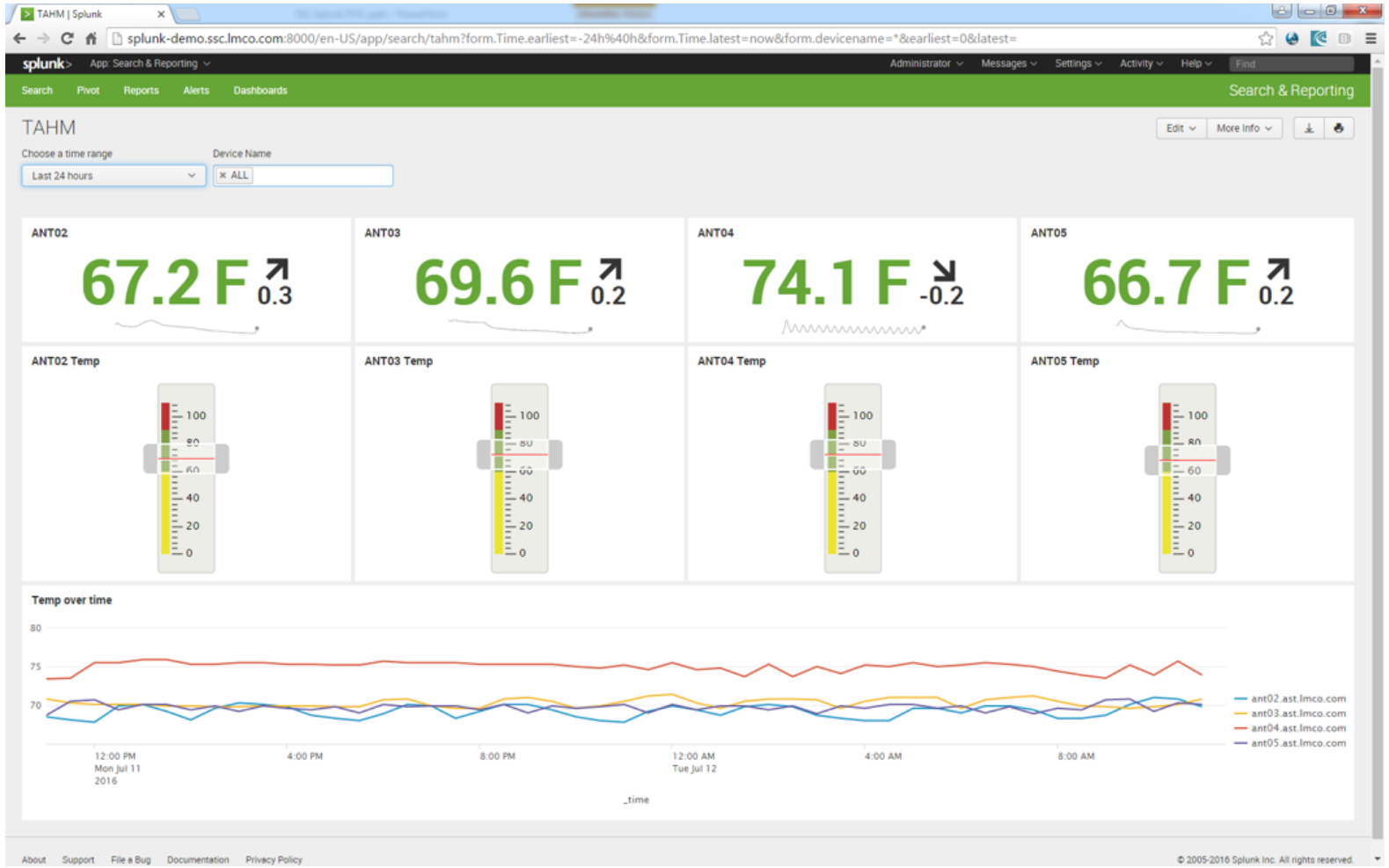
# Tracking Autoclave Temperatures

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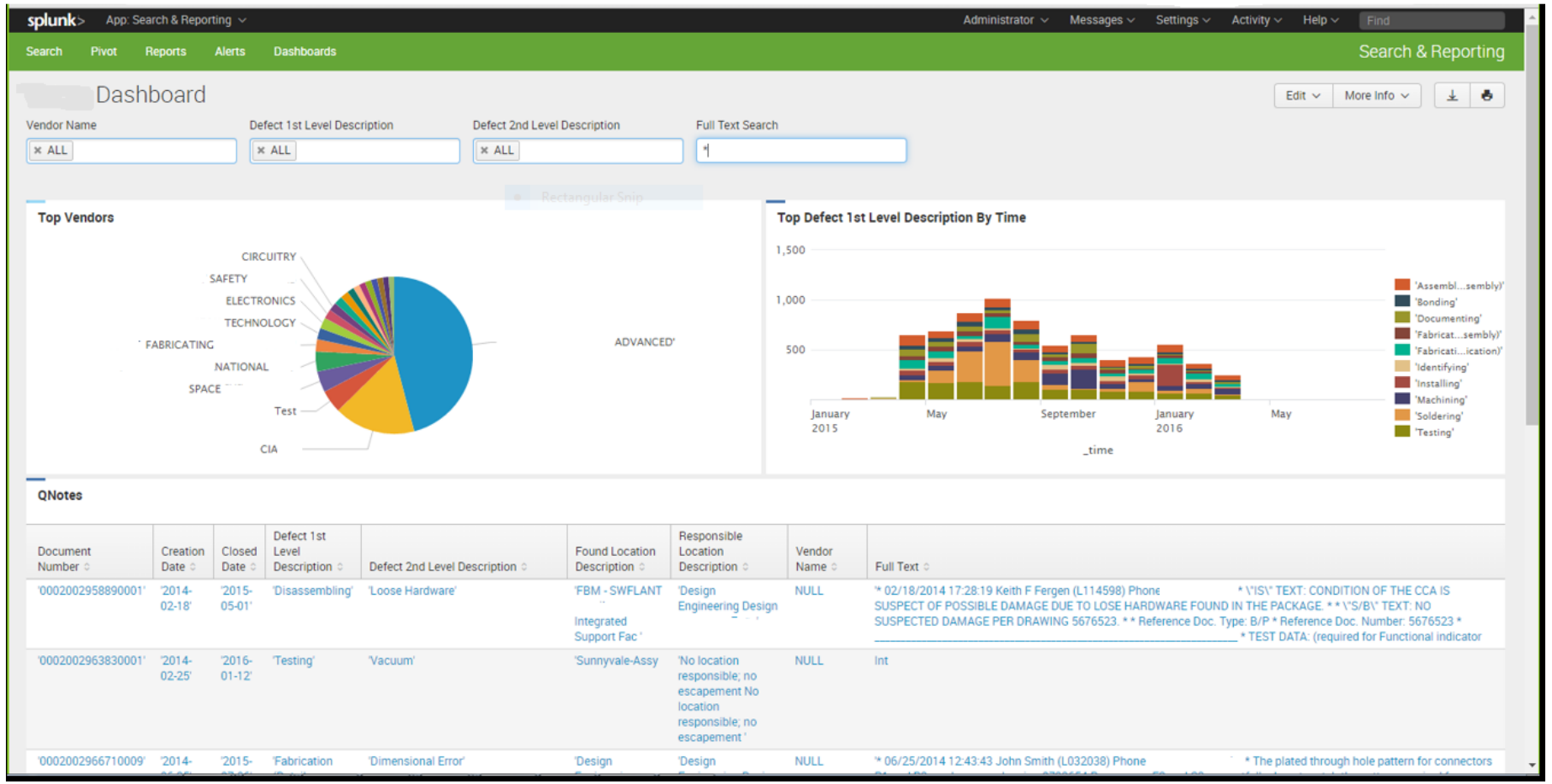
# Tracking Quality

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# The Instrumented Enterprise

- Expand knowledgebase to all aspects of the business
- Supply chain to sustainment, from shop floor to the sky
- Collect and use data to be secure, efficient, nimble
- Digital transformation requires transforming your thinking, your organization as well as transforming  your data

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- The P-38 Lightning was a fighter of the “Greatest Generation”
- The F-35 Lightning II is the fighter of the “Next Generation”

Splunk is the platform for Lockheed Martin to build a next generation enterprise to respond to digital transformation, emerging cyber threats, and agile operations by striving to be nimble as a fighter jet.

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# To get to a new place, start from a new place.

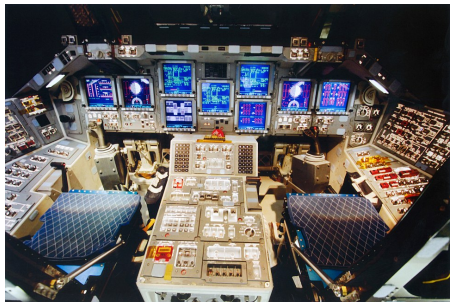
- "If your want to **change the world**, first **change yourself**" – Leo Tolstoy
- We are changing how we look at data, our organization, and ourselves
- Splunk is helping change our enterprise to be as nimble as a fighter jet

F-35 Lightning II

F-22 Raptor

C-130

UH-60 Blackhawk



Orion Spacecraft

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# Questions


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