أرامكو السعودية
saudi aramco

How Operation Technology (OT) Monitoring fits well with Machine Learning Toolkit (MLTK)

Saleh Ghamdi, IT Security Manager, Saudi Aramco

Anas Faruqui, IT Security Analyst, Saudi Aramco

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Introductions

So, who are we, and what we do?

Saleh Al-Ghamdi

- Worked in IT for over 20 years
- Worked in IT Security for last 15 years
- Seasoned Manager for IT Security
- Lead Manager “go to person” for Splunk and SIEM.
- Contributed to Internal Security Logging Standards

Anas Faruqui

- Worked with Splunk for over 10 years
- ICS/IOT Cyber Security Specialist
- Experience with “Data Diodes” and worked to improve concept of zones/conduits for Architecture Design in various vendors
- Experience in America, Middle East and Asia
- During my “free” time busy with running an non-for-profit in Chicago

where energy is opportunity

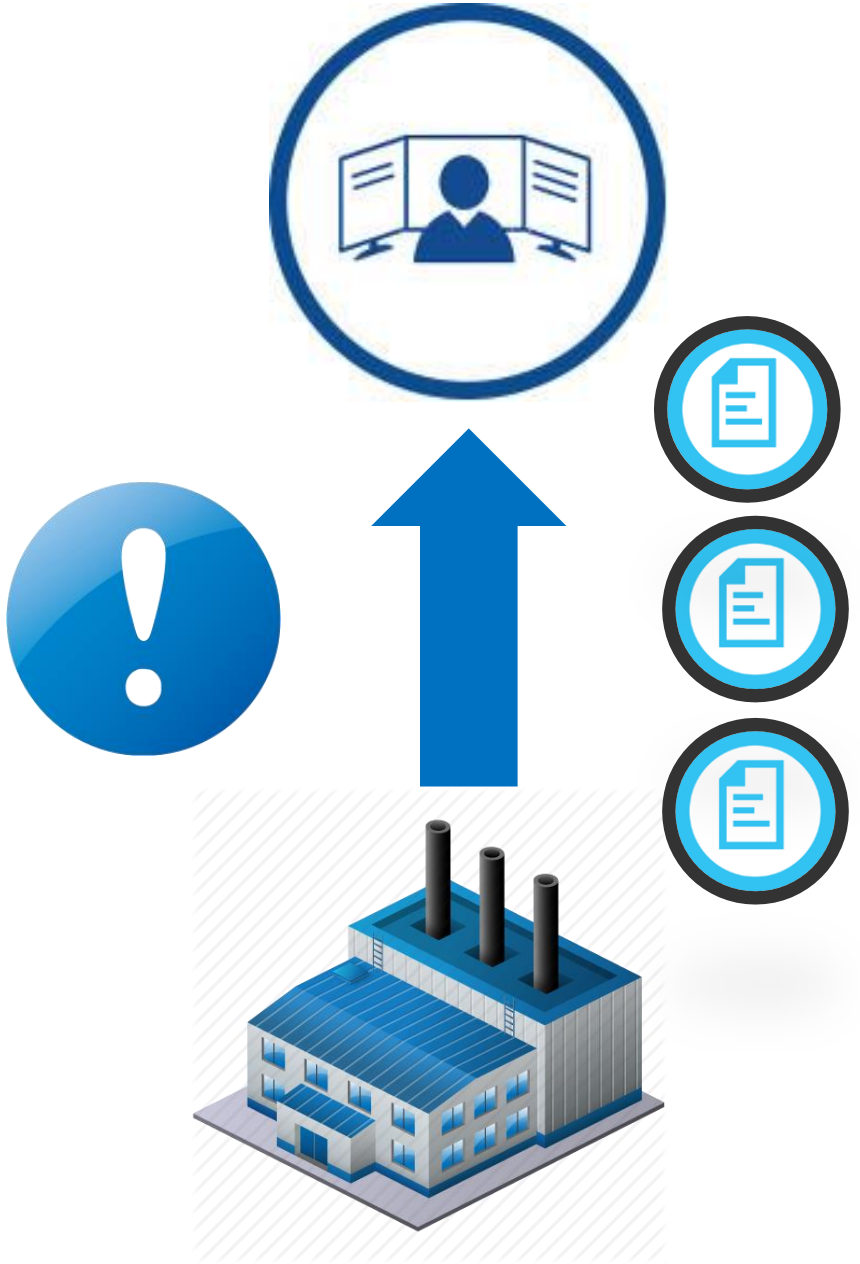
Energizing people and ideas to create even more opportunity from our resources

Agenda

- Why monitor OT?
- Approach
- Best Practices
- Why MLKT?
- Use Cases
- Road ahead & Challenges
- Takeaways
- Q&A

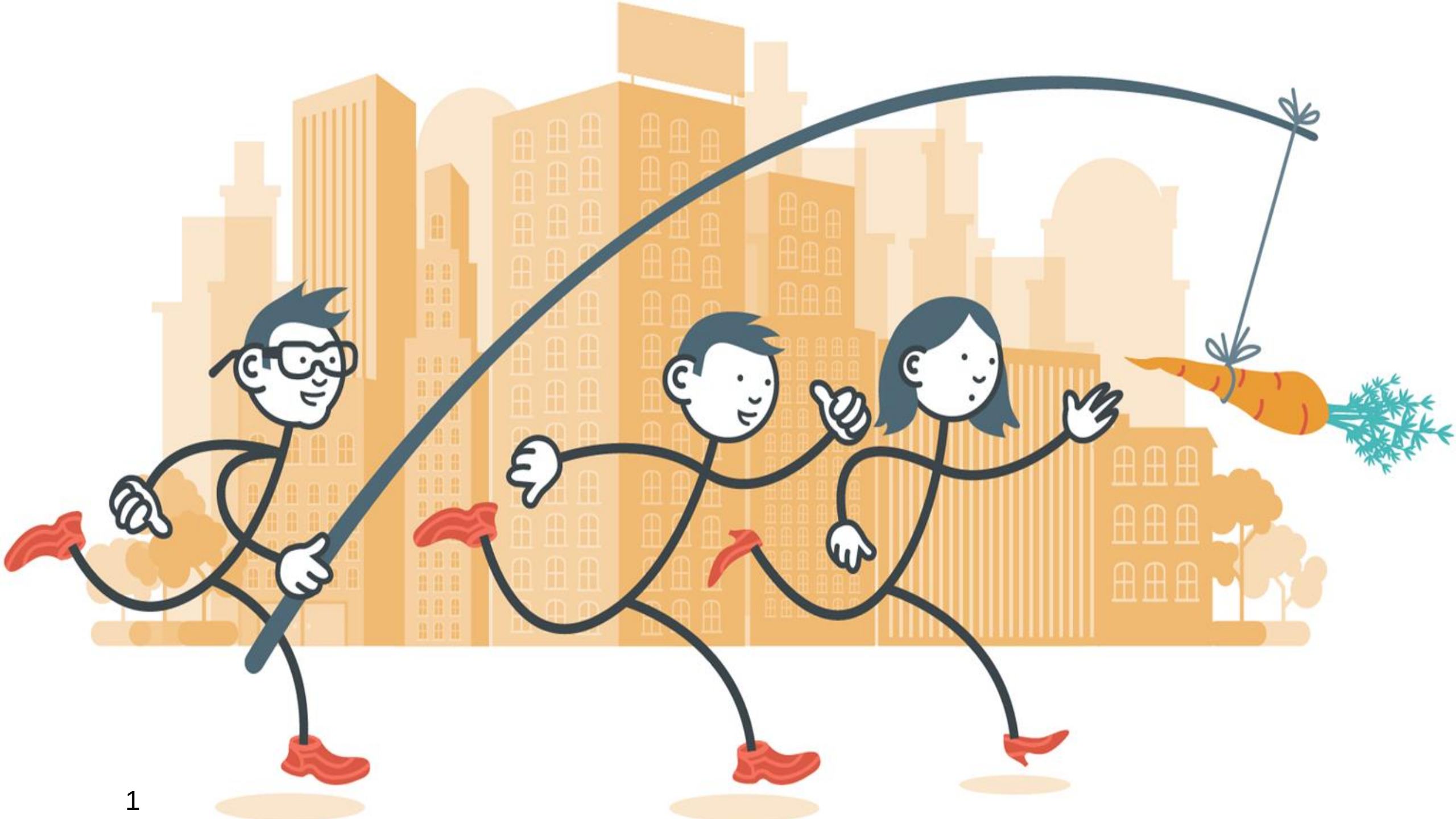
Why monitor OT?

- Threats are growing
- Enhance security
- Visibility
  - Internal Malfunction
  - Insider threats and Vendor misuse
- Compliance
- Availability



Approach

What made us go forward with monitoring OT?

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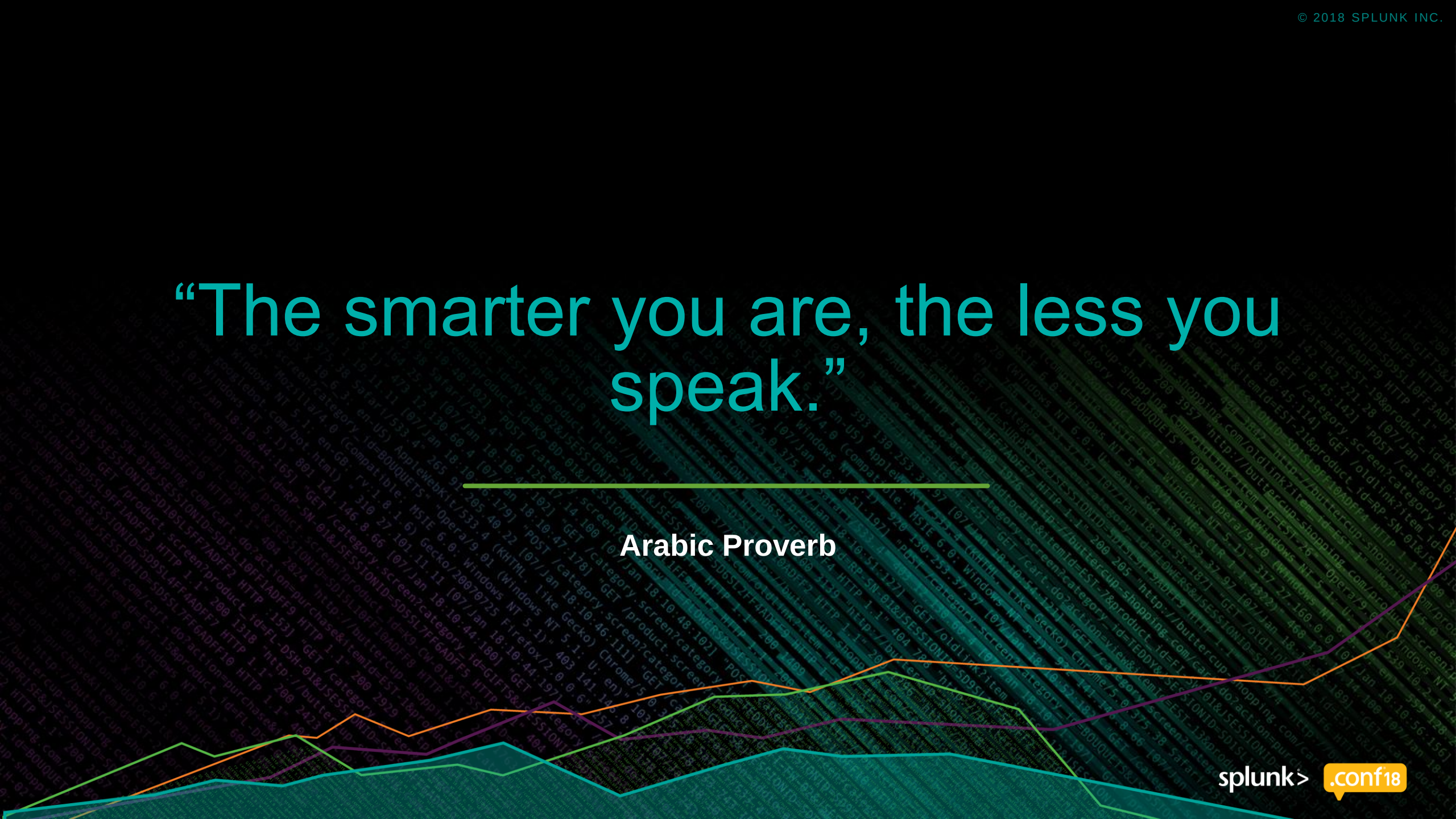
I like BIG data
& I cannot LIE
CALENDAR

“The smarter you are, the less you speak.”

Arabic Proverb



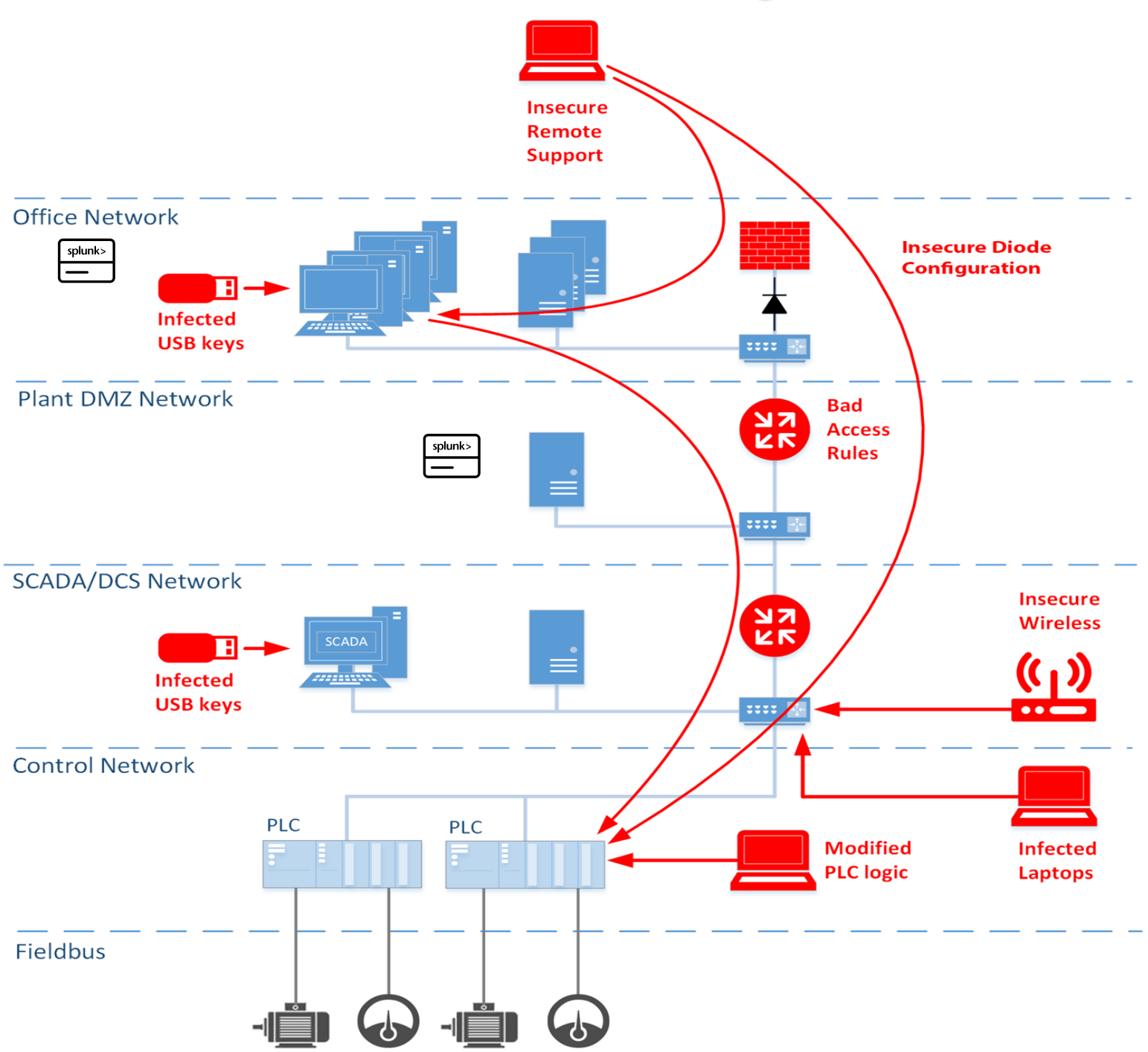
Implementing Splunk with MLTK in mind - Best Practice

- Worry about your model
- Assemble the right data
- Try automate identifying logs
- Separate each log source by vendor type and product name
- Tagging the data by unique customers
- Ingest data from L1/L2/L3 to L4
- Test before launching enterprise-wide solution

Why MLTK?

How does MLTK help OT?

- IT Systems within OT:
  - Easy but … so many legacy
  - “Too much data”
  - Eat everything, … filter later …
- ICS Applications Logs
  - Complex
  - Is it possible?
- Large Datasets = Rare updates = MLKT



Typical Architecture of ICS Network

Use Cases

Compliance

Security

Availability

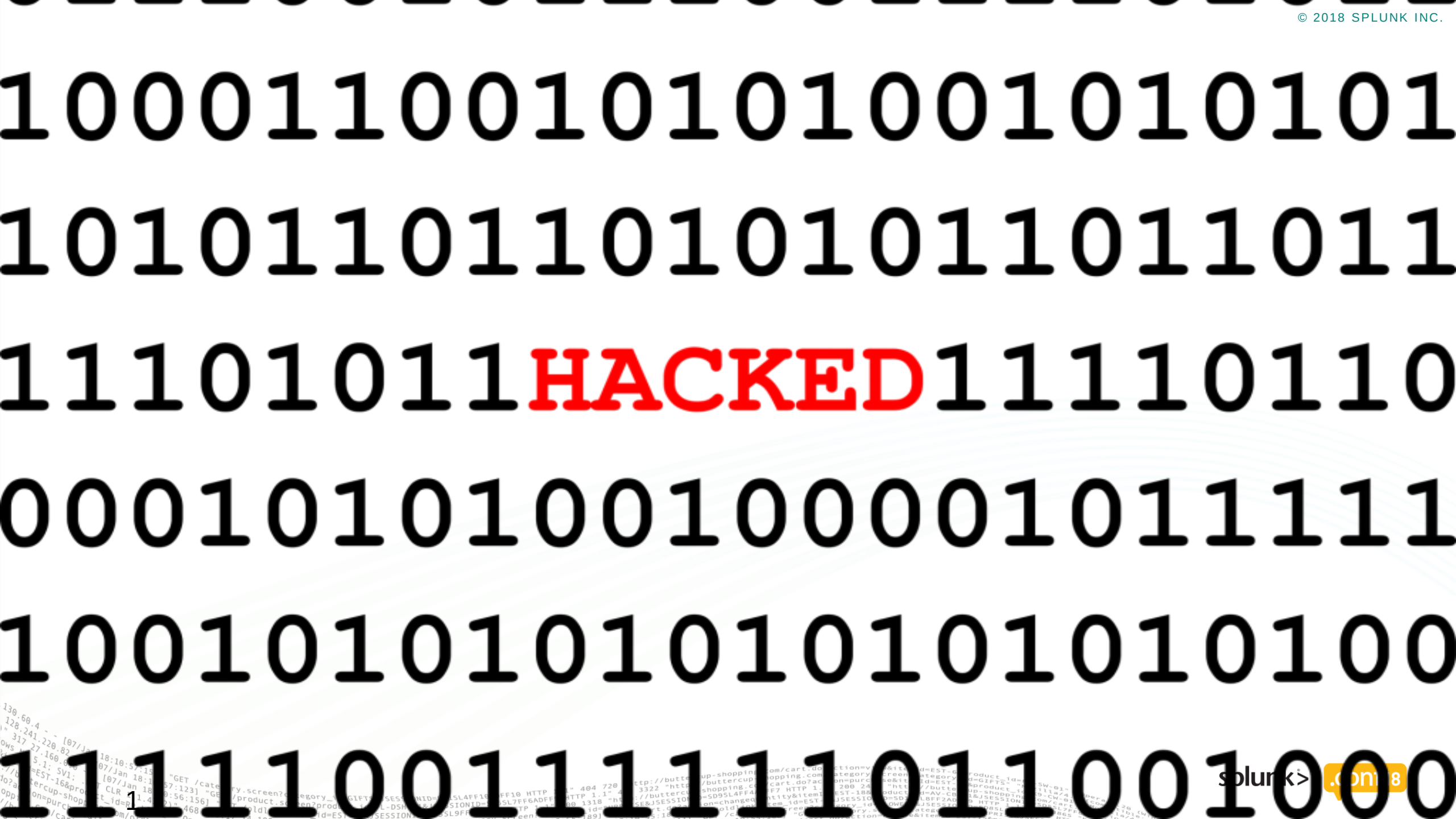

COMPLIANCE
TRANSPARENCY
RULES
LAW
POLICIES
REGULATIONS
STANDARDS
REQUIREMENTS

Compliance

- Are logs even generated?
- Manually process of validation
- Spot Checking

- Use tools to validate logs generation
- Input compliance tools data in Splunk to see logs are coming
- Verify using outlier method between groups of “customers” and types of logs

Are logs coming?

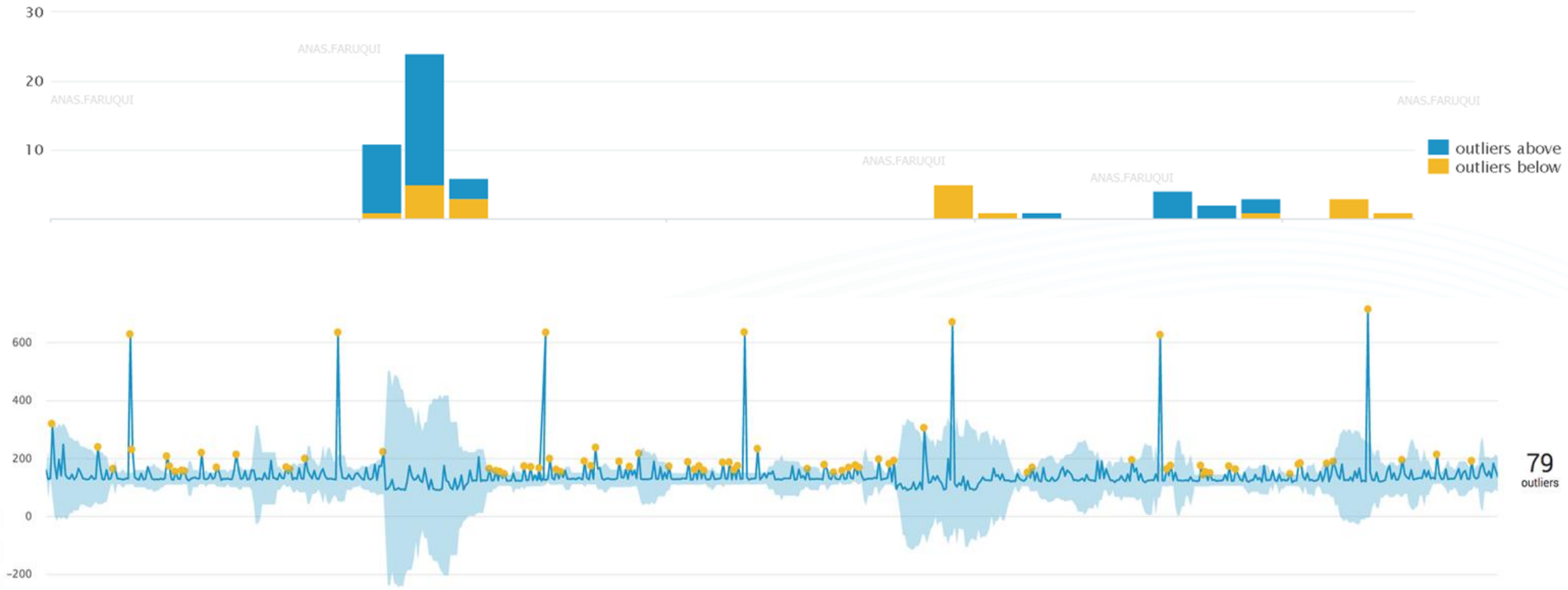


Security

- Too large datasets
- Baseline individual customer is not giving you anything meaningful

- Uncommon patterns, like new malware, brute force login attempts
- Credential behavior and how it works again
- Correlate, Correlate, Correlate datasets from various “customers”

Login failure attempts & Firewall denies




OPEN
24 Hrs

Availability

- Why Failure Occurred
- Manual Spot Checking of Failures
- Holistic view of all logs
- Common Components are health, temperature, disk, memory, etc

Device(s) Temperature

1,239

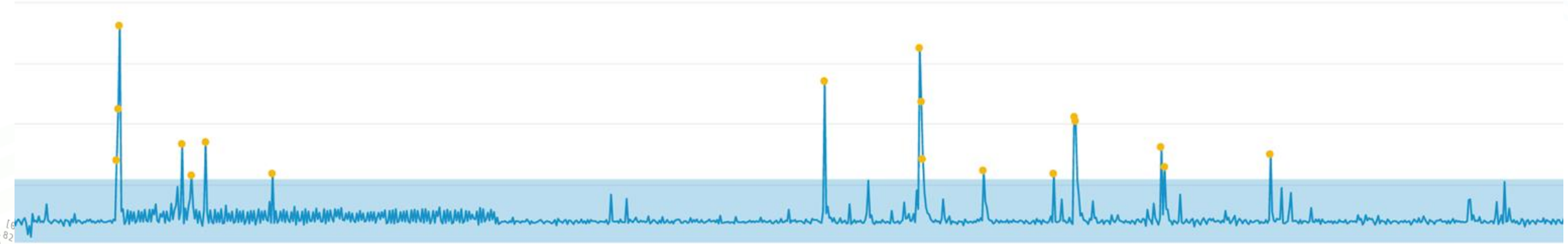
Outlier(s)

Open in Search | Show SPL | Schedule Alert

2,889

Total Event(s)

Open in Search | Show SPL



“The ROAD to success is D.O.T.T.E.D. with many tempting parking spaces.”

Crush it Media

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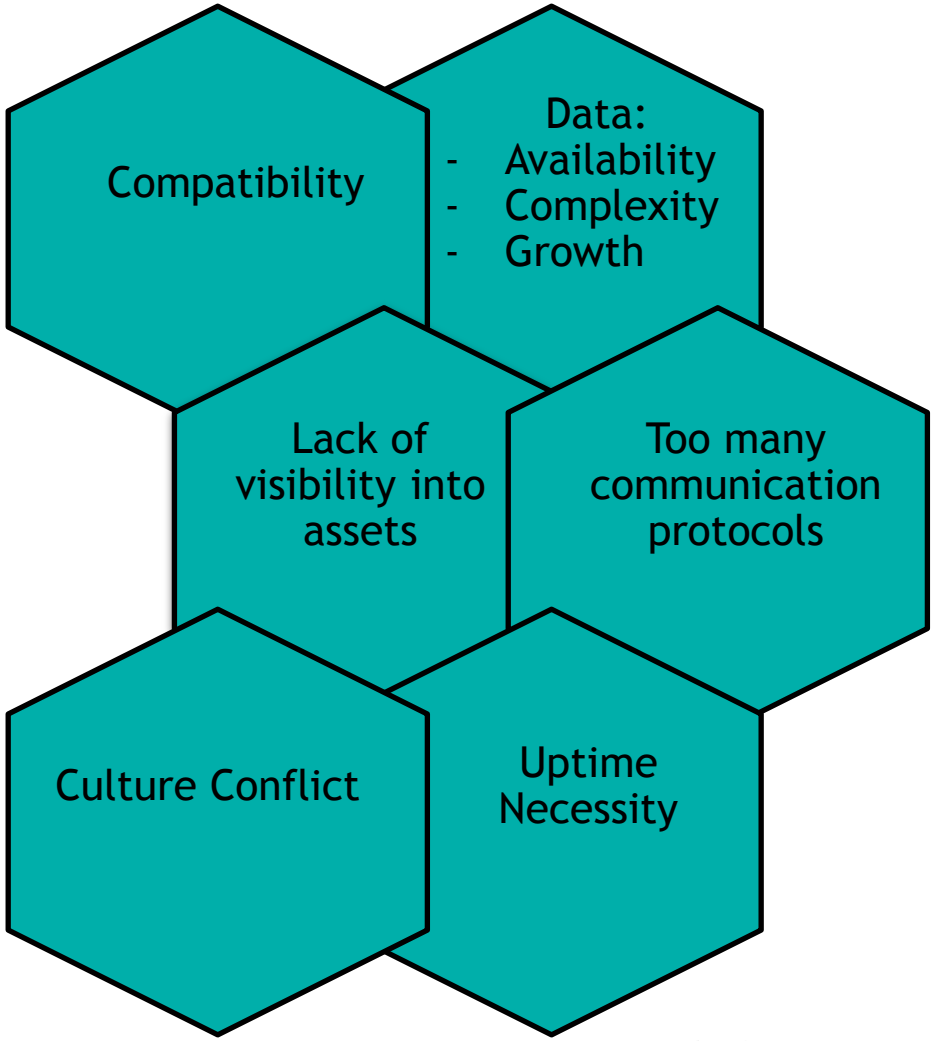
OT Monitoring Top Challenges

the growing concerns in OT monitoring



Key Takeaways
& Future

1. Security Monitoring cannot work without Operational & Performance monitoring
2. MLTK Optimization is required constantly
3. Leverage other tools to augment OT monitoring
4. Culture conflict resolution

Q&A

Saleh Al-Ghamdi | IT Security Manager, Saudi Aramco

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