

Filling a Black Hole and Bending the Space-time Continuum with ITSI

...plus a few other snippets

Forward-Looking Statements

During the course of this presentation, we may make forward-looking statements regarding future events or the expected performance of the company. We caution you that such statements reflect our current expectations and estimates based on factors currently known to us and that actual events or results could differ materially. For important factors that may cause actual results to differ from those contained in our forward-looking statements, please review our filings with the SEC.

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Syncsort + Splunk

- ▶ Keynote announcements
- ▶ Splunk .conf 2016 - Orlando FL

syncsort 50 Year Veteran

“Big Iron to Big Data”

Trusted Industry Leadership

We provide unique data management solutions and expertise to over 2,500 large enterprises worldwide with an unmatched focus on customer success & value

Best Quality, Top Performance, Lower Costs

Our proven software efficiently delivers all critical enterprise data assets with the highest integrity to Big Data environments, on premise or in the cloud

Highly Acclaimed & Award Winning

- Data Quality “Leader” in Gartner Magic Quadrant
- IT World Awards® 2016 “Innovations in IT” Gold Winner
- Database Trends & Applications “Companies That Matter Most in Data”

MARQUEE GLOBAL CUSTOMER BASE OF LEADERS & EMERGING BUSINESSES ACROSS INDUSTRIES



DEEP ENGINEERING AND GO-TO-MARKET WITH STRATEGIC PARTNERS IN DATA ECOSYSTEM



syncsort Today

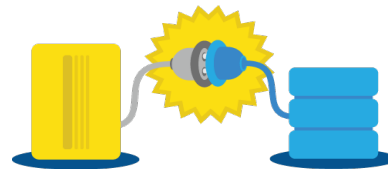
Quality

- Governance
- Customer 360
- Quality & Integration
- Enrichment & Validation



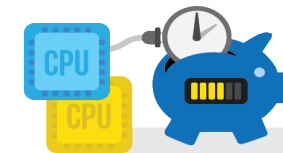
Access & Integration

- Mainframe Access & Integration
- Machine Data
- High-performance ETL



Infrastructure Optimization

- Mainframe Optimization
- Application Modernization
- Enterprise Data Warehouse Optimization



130.60.4 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=5D5SLAFF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&product_id=FI-5W-03"
 128.241.220.82 - - [07/Jan 18:10:57:123] "GET /product.screen?product_id=FL-DSH-01&JSESSIONID=5D5SL7FF6ADFF9 HTTP 1.1" 404 3322 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268product_id=KQ-CU-01"
 317.27.160.0 - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=5D5SL9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D5SL7FF6ADFF9 HTTP 1.1" 200 3855 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268product_id=KQ-CU-01"
 10.0.0.1 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D5SL7FF6ADFF9 HTTP 1.1" 200 3855 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268product_id=KQ-CU-01"
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Mainframe

The legacy platform, right?



- ▶ Back in the day...
- Room-filler
- Simple top-down data processing
- Number crunching
- Gaming was Tic-Tac-Toe

Mainframe Today

A cutting-edge machine



- ▶ ***New*** IBM z14
 - Pervasive encryption
 - Machine learning
 - Built for...
 - Mobile
 - Cloud
 - Blockchain

Mainframe Today

Mission-critical data is managed by System z



2000+

Companies use mainframe*

92%

Of top 100 banks rely on mainframe for core banking systems*

90%

Of world's largest airlines use z Systems*

400m

Walmart 400m transactions, 150m web service calls per day*

...in 2015...

9.7TB

Average daily mainframe **log** volume¹ (our top 50 customers)

```

130.60.4 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=5D1SLAFF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&product_id=FI-5W-03"
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317.27.160.0.0 - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=5D5L9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D1B5L9FF2ADFF9"
0.0.0.0 - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-6&JSESSIONID=5D1B5L9FF2ADFF9 HTTP 1.1" 200 385 "http://buttercup-shopping.com/category.screen?category_id=FLOWERS&JSESSIONID=5D5L7FF6ADFF0"
0.0.0.0 - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=5D5L9FF1ADFF3 HTTP 1.1" 468 125.17.14.1 "http://buttercup-shopping.com/category.screen?category_id=FLOWERS&JSESSIONID=5D5L7FF6ADFF0"
0.0.0.0 - - [07/Jan 18:10:56:156] "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D5L7FF6ADFF0 HTTP 1.1" 404 322 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-26&product_id=KQ-CB-01"

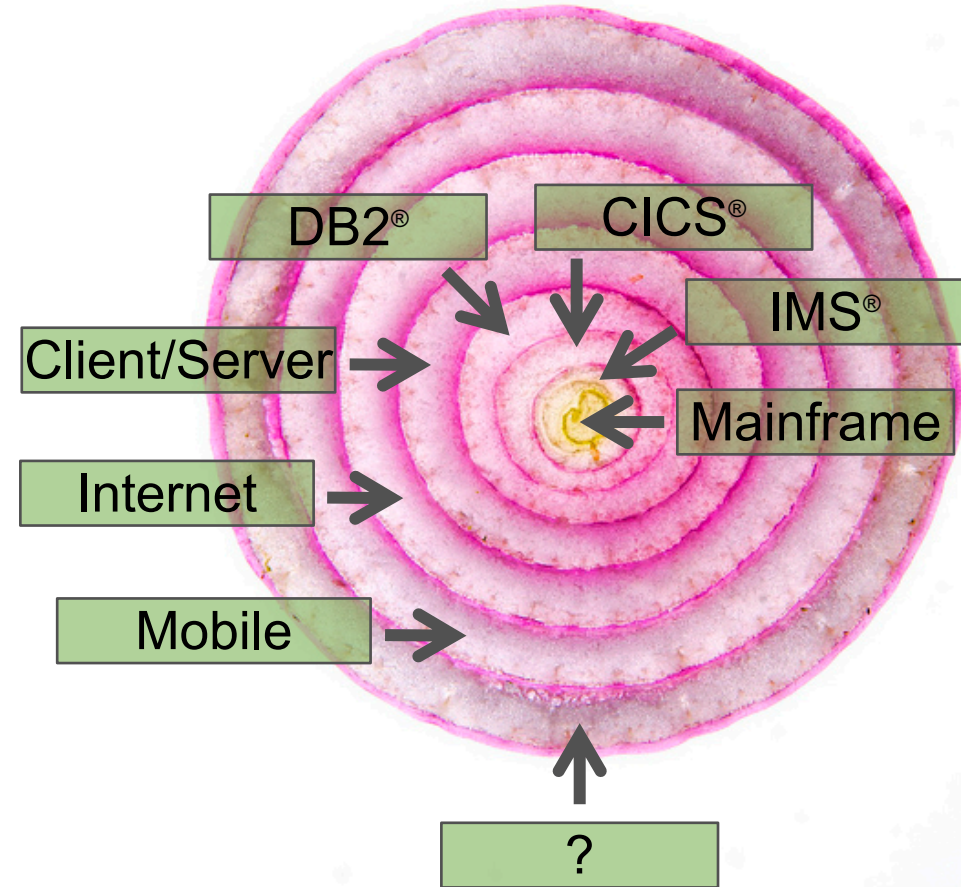
```

*source IBM, ¹source Syncsort

Systems Evolve

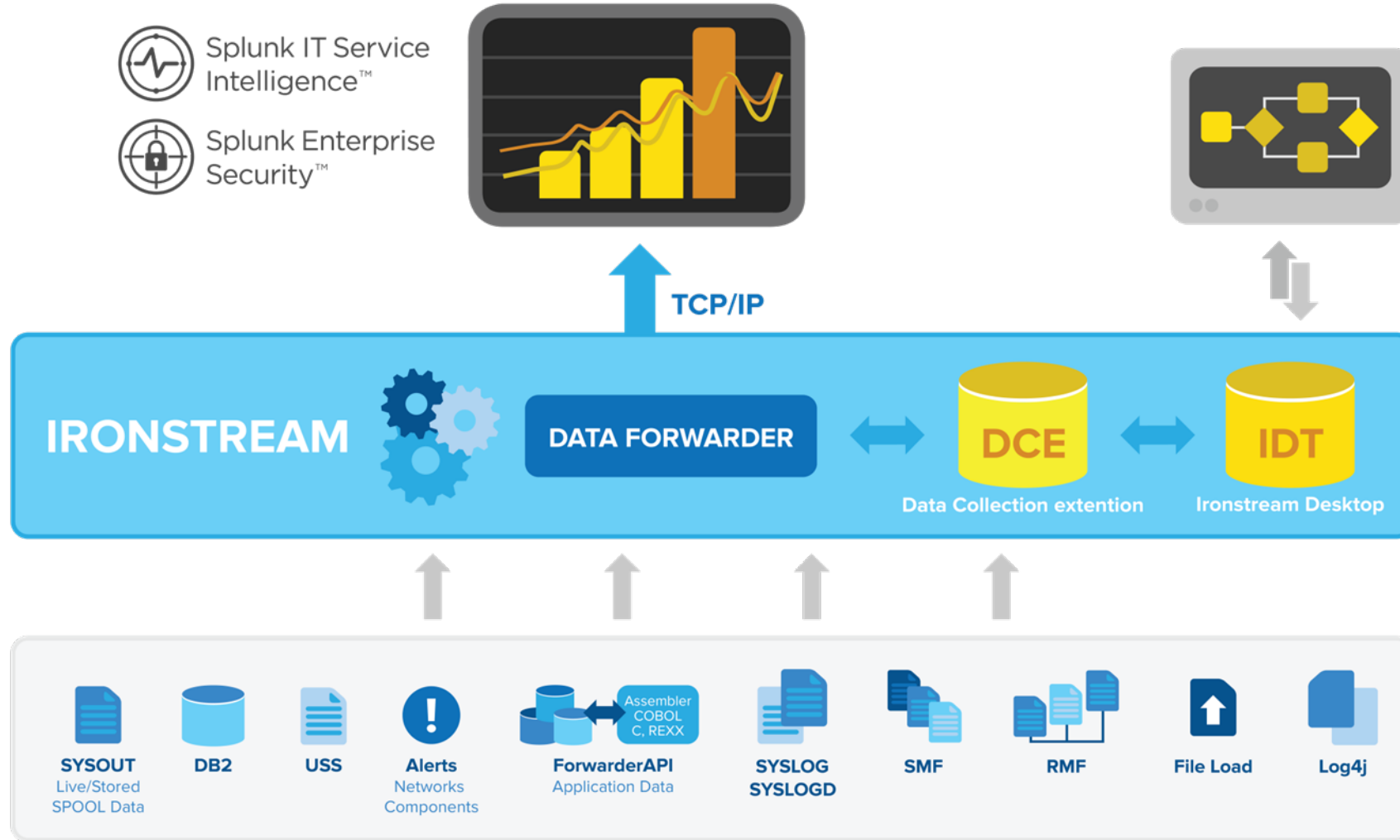
Layers added over time

- ▶ Everything was on the mainframe
 - Home of data processing
- ▶ Other software components added
 - CICS®, IMS®, IDMS®, DB2®, MQ®, WebSphere®
- ▶ Transitioned to Client/Server
 - JDBC / ODBC
- ▶ Dawn of the Internet
 - Web Services, SOAP, RESTful API, XML, JSON
- ▶ Mobile world



*IBM registered trademarks

Syncsort Ironstream[®]



130.60.4 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=5D15LAF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&product_id=FI-SW-03"
128.241.220.82 - - [07/Jan 18:10:57:123] "GET /product.screen?product_id=FL-DSH-01&JSESSIONID=5D35L7FF6ADFF0 HTTP 1.1" 404 3322 "http://buttercup-shopping.com/cart.do?action=purchase&itemId=EST-268product_id=KQ-CU-01"
317.27.160.0.0 - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D55L9FF1ADFF3"
125.17.14 - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 1318 "http://buttercup-shopping.com/cart.do?action=changequantity&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D55L9FF1ADFF3"
125.17.14 - - [07/Jan 18:10:56:156] "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D55L9FF1ADFF3"
125.17.14 - - [07/Jan 18:10:56:156] "GET /category.screen?category_id=FLOWERS&JSESSIONID=5D55L9FF1ADFF3 HTTP 1.1" 200 3865 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-18&product_id=AV-CB-01&JSESSIONID=5D55L9FF1ADFF3"

Typical System

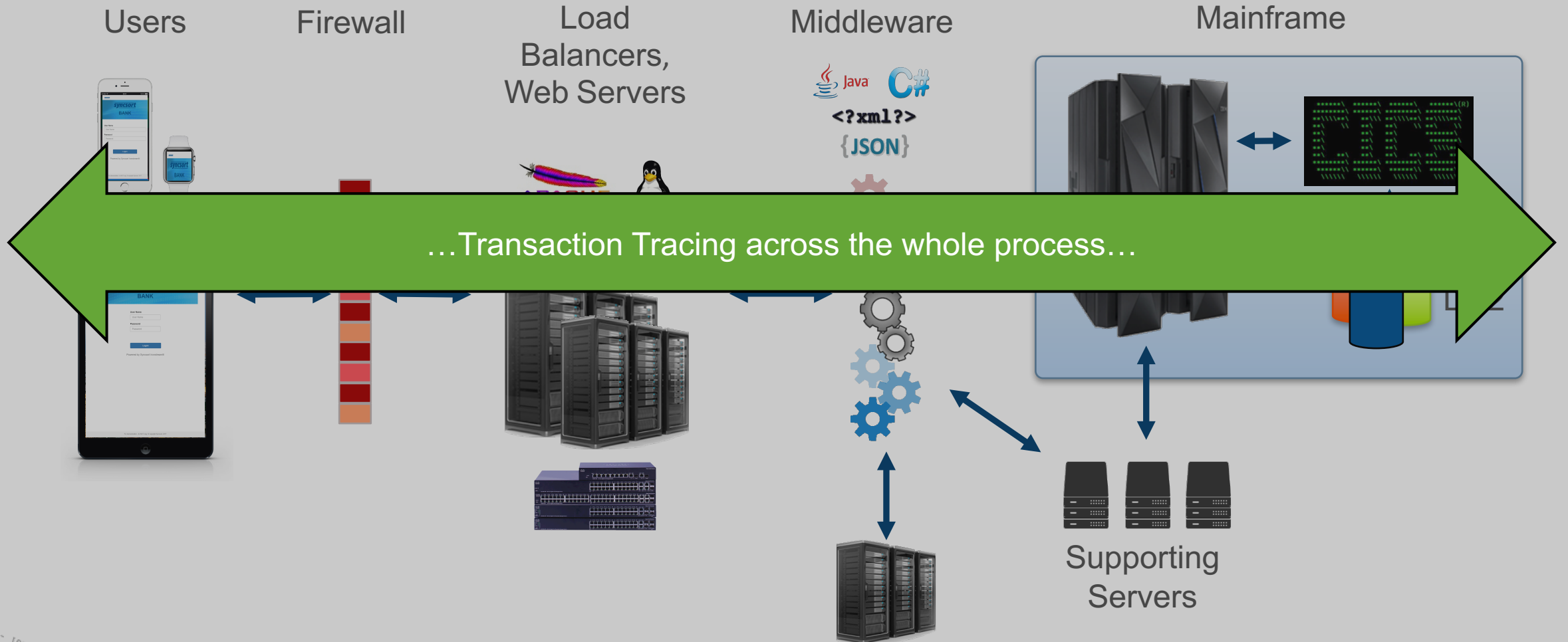
A mix of software and hardware components



```
130.60.4 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=SD1SLAFF10ADFF10 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&product_id=FI-SW-03"
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172.16.0.0 - - [07/Jan 18:10:56:189] "GET /category.screen?category_id=FLOWERS&JSESSIONID=SD1S5L8FF2ADFF9 HTTP 1.1" 200 385 "http://buttercup-shopping.com/categories.do?action=remove&itemId=EST-108"
```

Example: Online Banking

A simplified view



...Transaction Tracing across the whole process...

Supporting Servers

```

130.60.4 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=5D5L9FFIADFF3 HTTP 1.1" 404 720 "http://buttercup-shopping.com/cart.do?action=view&itemId=EST-6&product_id=FI-5W-03"
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buttercup-shopping.com - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=5D5L9FFIADFF3 HTTP 1.1" 468 125.17.14.189 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-26&product_id=AV-CB-03&JSESSIONID=5D5L9FFIADFF3 HTTP 1.1"
buttercup-shopping.com - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=5D5L9FFIADFF3 HTTP 1.1" 468 125.17.14.189 "http://buttercup-shopping.com/cart.do?action=remove&itemId=EST-26&product_id=AV-CB-03&JSESSIONID=5D5L9FFIADFF3 HTTP 1.1"

```


IT Service Intelligence

Syncsort Mainframe Module

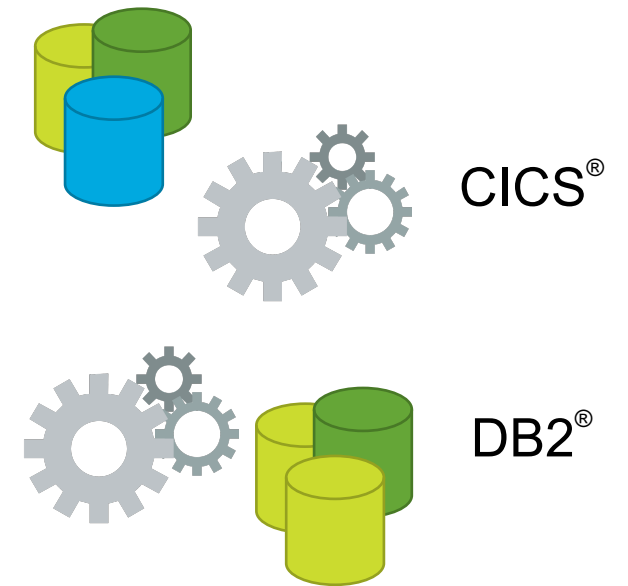
Server
(mainframe)



Virtual Machines
(LPAR)



Components
(software)



130.60.4 - - [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=SD5L9FF1ADFF3 HTTP 1.1" 404 720
128.241.220.82 - - [07/Jan 18:10:57:123] "GET /product.screen?product_id=FL-DSH-01&JSESSIONID=SD5L9FF1ADFF3 HTTP 1.1" 200 1318
317.27.160.0.0 - - [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=SD5L9FF1ADFF3 HTTP 1.1" 200 385
... [07/Jan 18:10:57:153] "GET /category.screen?category_id=GIFTS&JSESSIONID=SD5L9FF1ADFF3 HTTP 1.1" 404 720
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... [07/Jan 18:10:56:156] "GET /oldlink?item_id=EST-26&JSESSIONID=SD5L9FF1ADFF3 HTTP 1.1" 200 385

IT Service Intelligence

Mainframe Module Building Blocks

► Base Searches

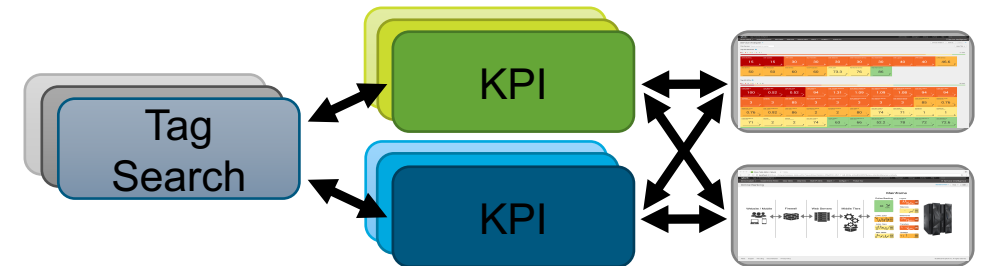
- CPC
- LPAR
- CICS system
- DB2 system
- Transactions
 - Overall
 - Individual

► Metrics

- % Utilization
- Workflow / Delay
- Memory usage
- Average response times
- Failures
- Lock Waits
- Escalations
- etc.

► Visuals

- Detail Dashboards
- Glass Tables*

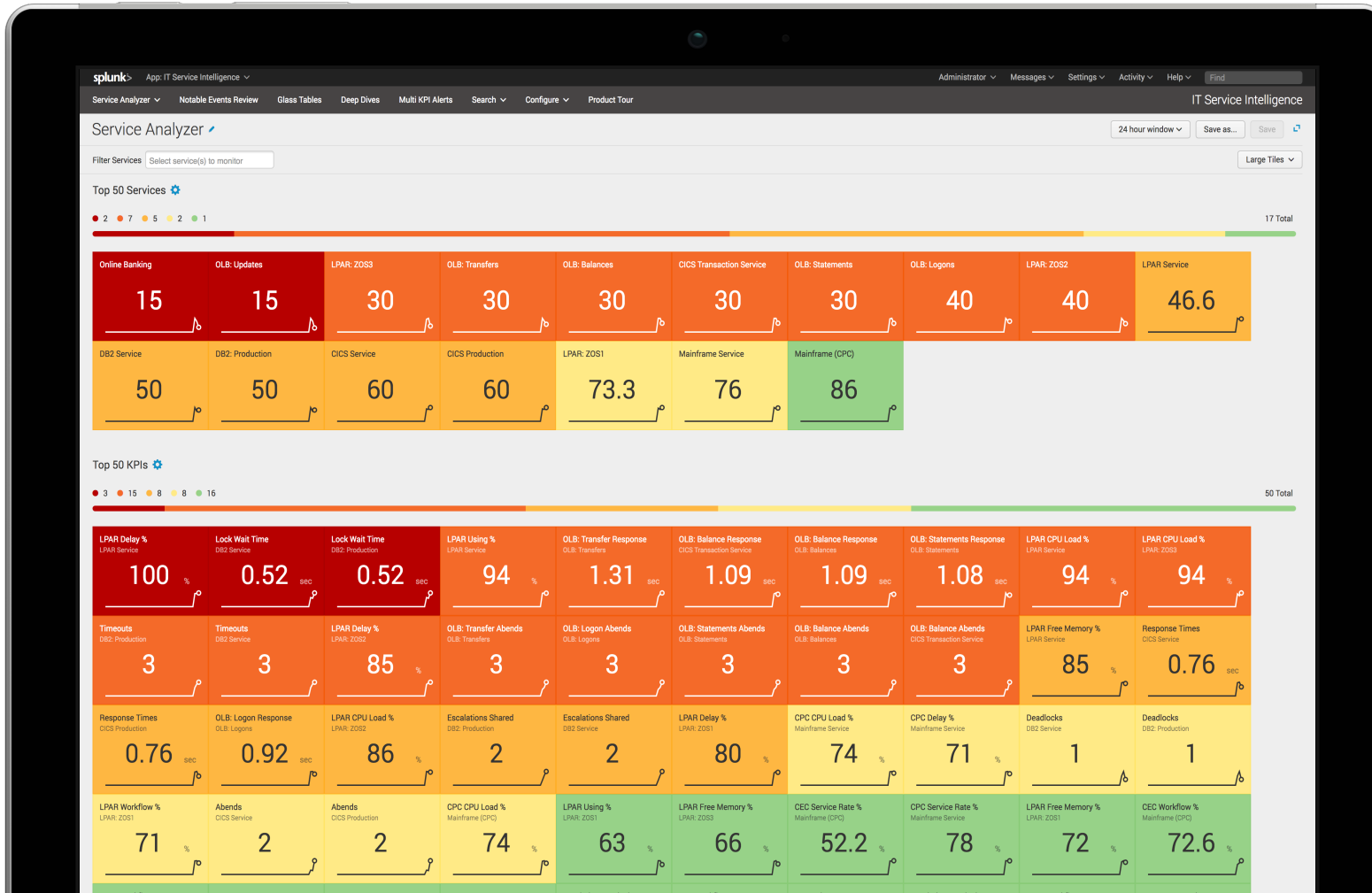


*currently available separately – not shippable in an ITSI module

Mainframe Service Analyzer

Mainframe metrics

- ▶ Services
- ▶ KPIs
- ▶ All mainframe



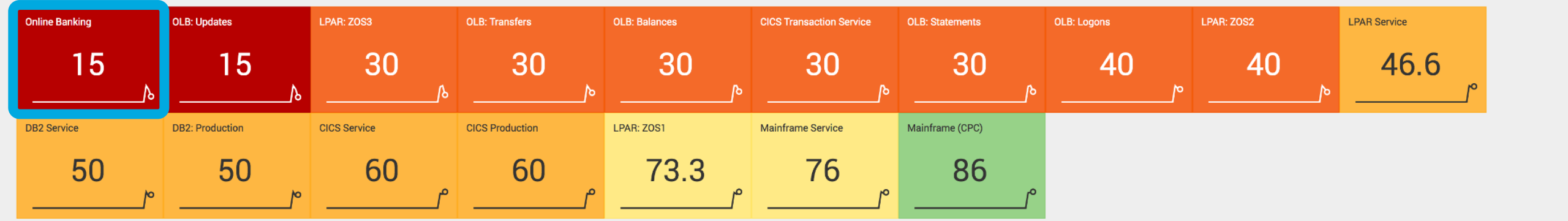
Service Analyzer

24 hour window Save as... Save

Filter Services Large Tiles

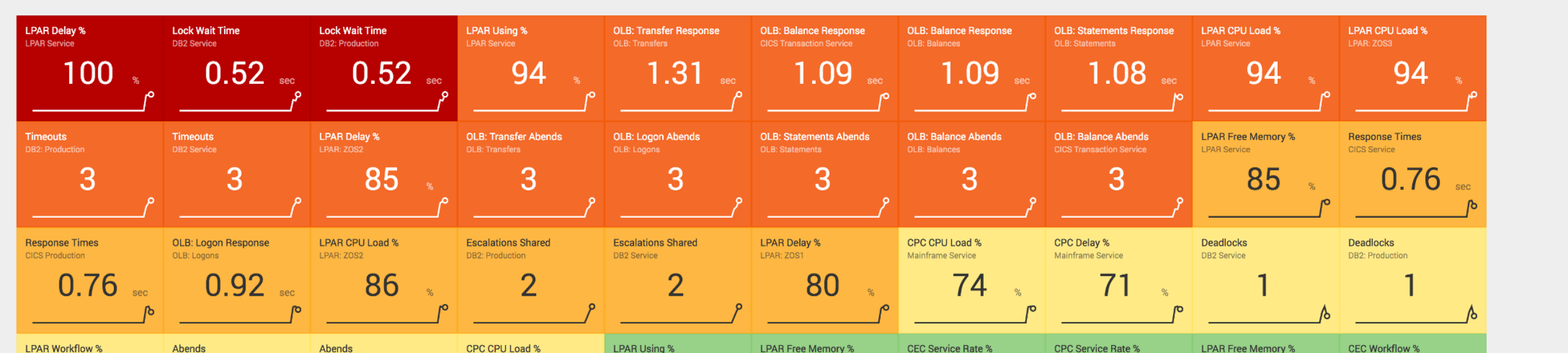
Top 50 Services

● 2 ● 7 ● 5 ● 2 ● 1 17 Total



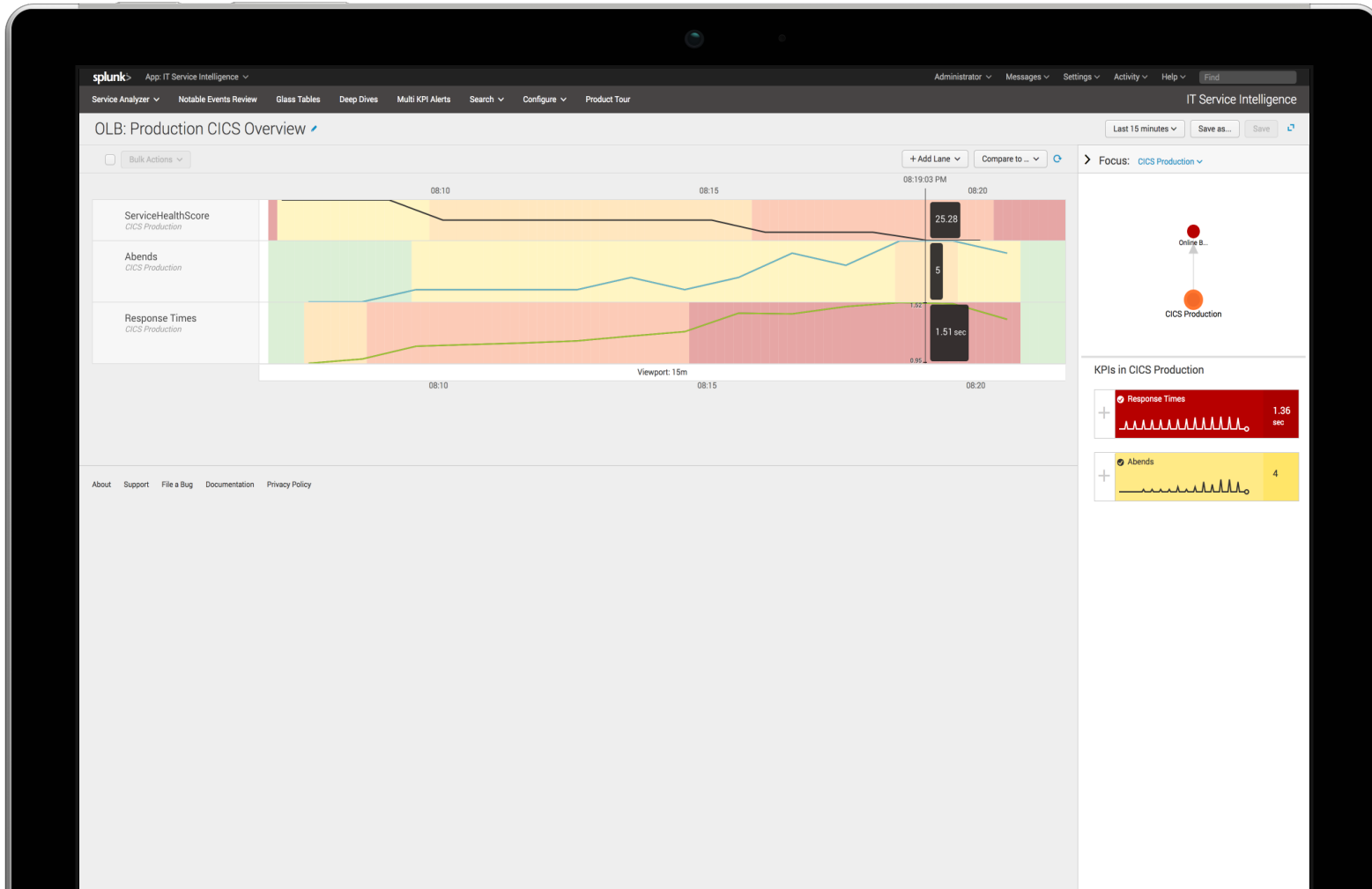
Top 50 KPIs

● 3 ● 15 ● 8 ● 8 ● 16 50 Total



Deep Dives

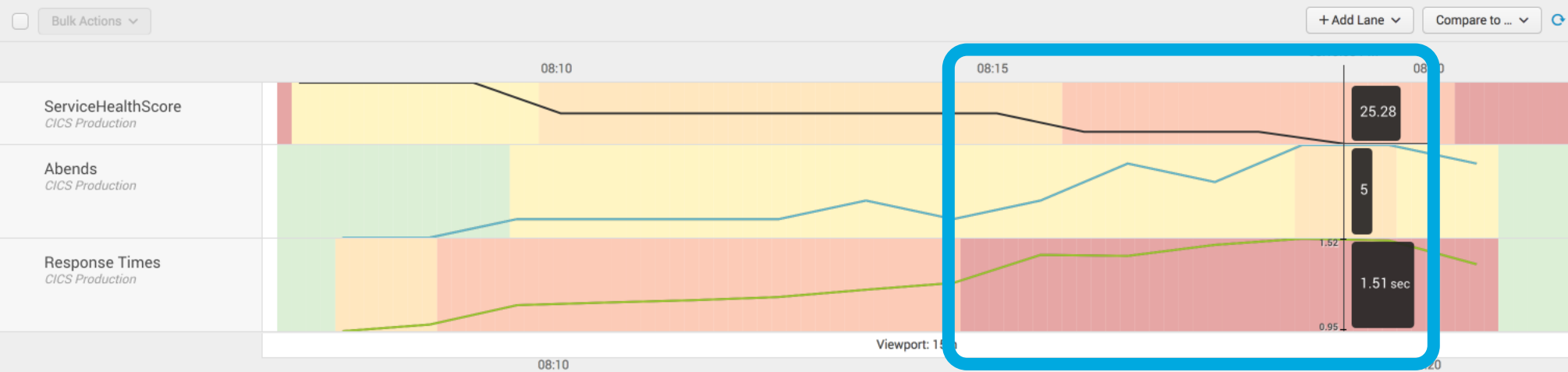
Context-based Content



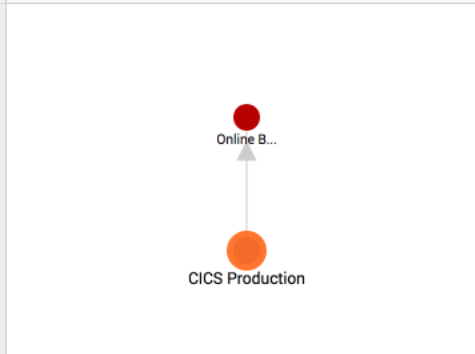
- ▶ Focus on what is happening
- ▶ Compare with previous timeframes
- ▶ Add other KPIs for comparison

OLB: Production CICS Overview

Last 15 minutes Save as... Save



Focus: CICS Production

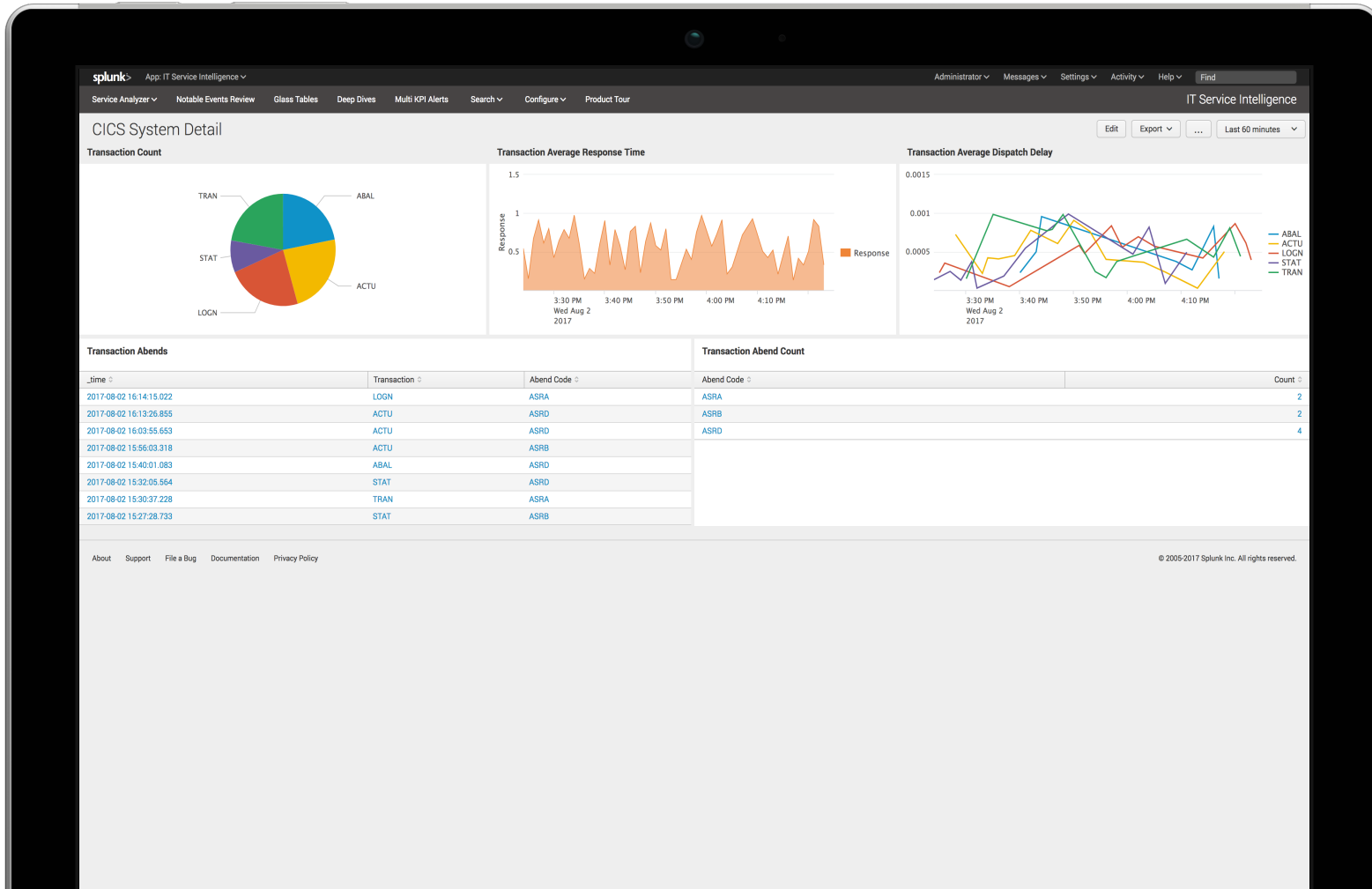


KPIs in CICS Production

- + Response Times 1.36 sec
- + Abends 4

Detail Dashboards

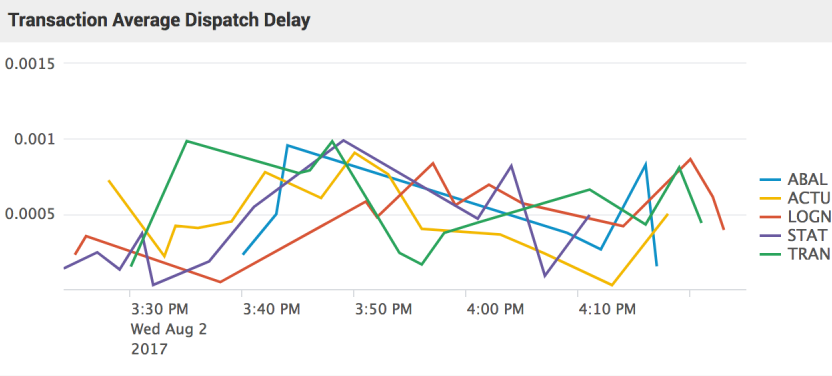
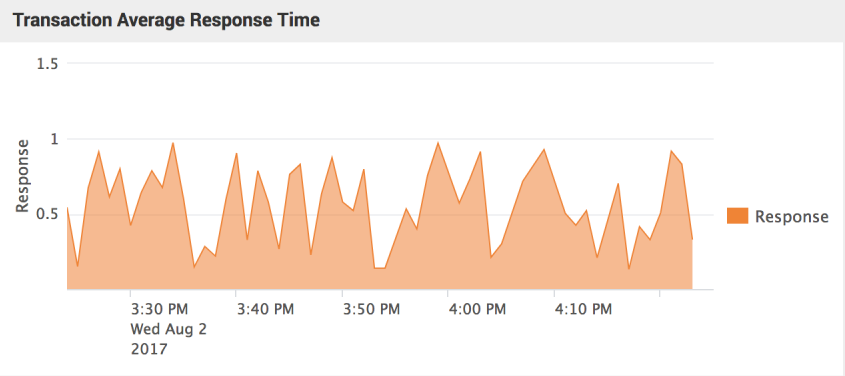
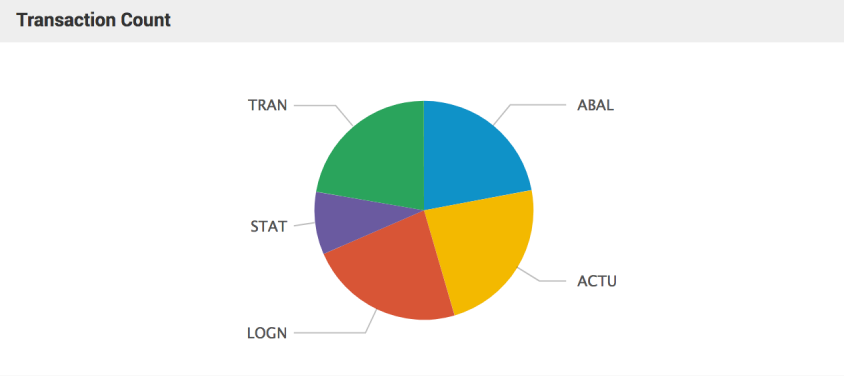
Context-based Content



- ▶ Relevant detail
- ▶ Zero in on issues
- ▶ Take corrective actions...

CICS System Detail

Edit Export ... Last 60 minutes

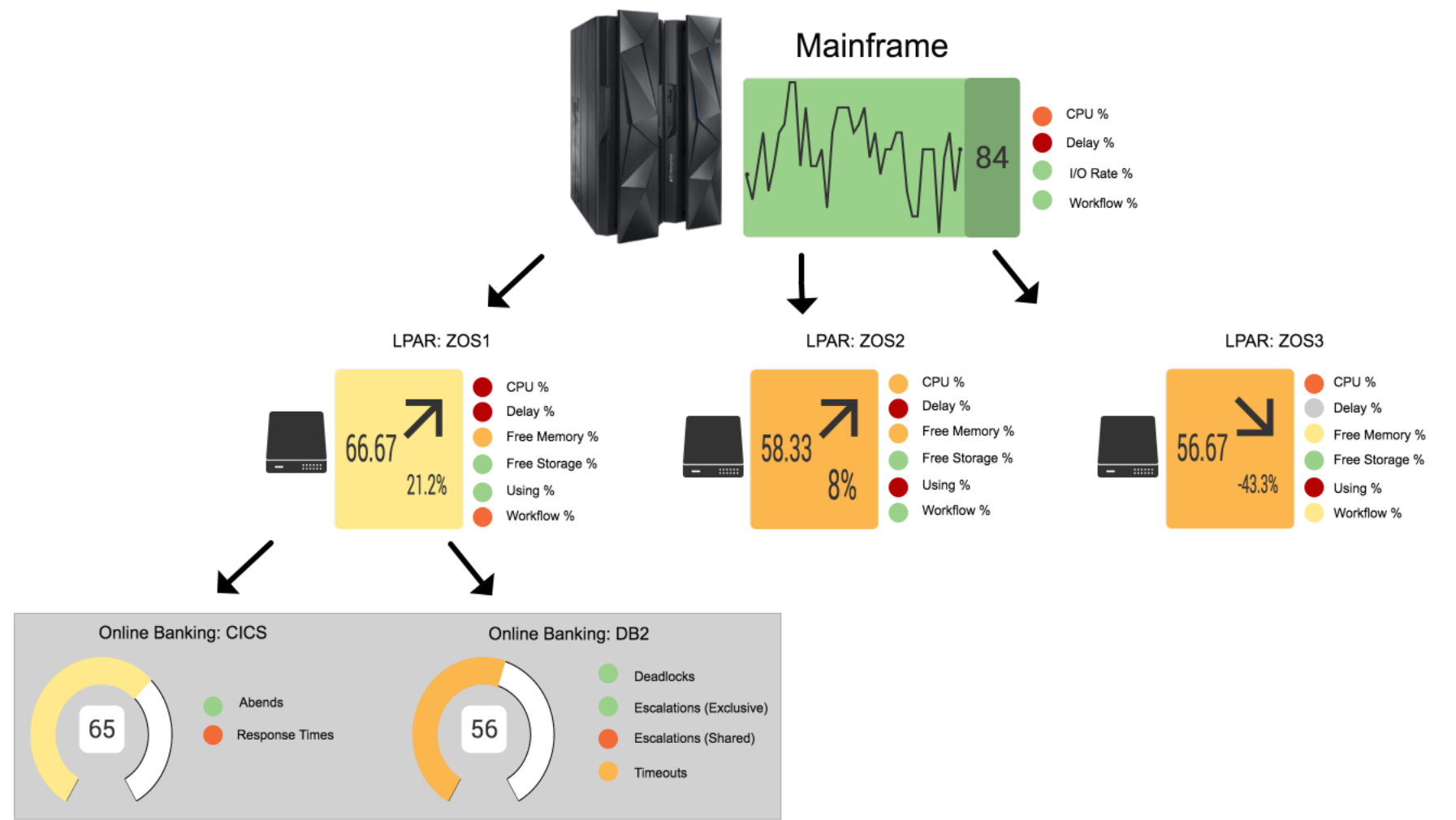


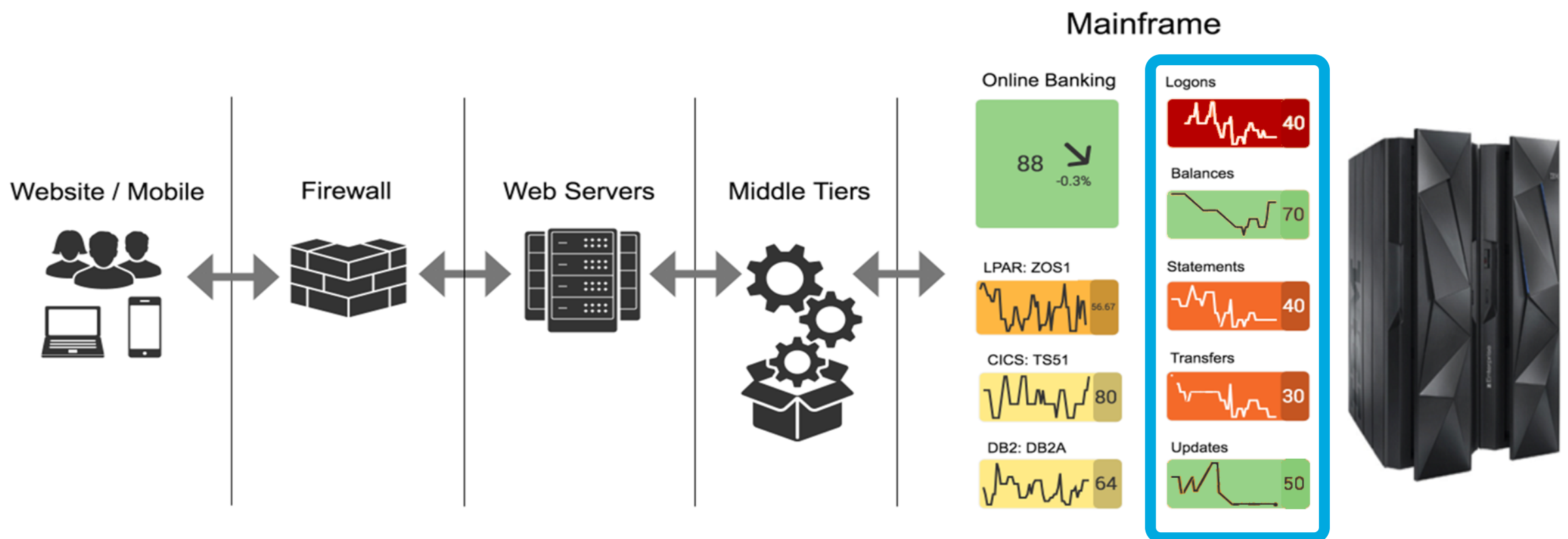
Transaction Abends

_time	Transaction	Abend Code
2017-08-02 16:14:15.022	LOGN	ASRA
2017-08-02 16:13:26.855	ACTU	ASRD
2017-08-02 16:03:55.653	ACTU	ASRD
2017-08-02 15:56:03.318	ACTU	ASRB
2017-08-02 15:40:01.083	ABAL	ASRD
2017-08-02 15:32:05.564	STAT	ASRD
2017-08-02 15:30:37.228	TRAN	ASRA
2017-08-02 15:27:28.733	STAT	ASRB

Transaction Abend Count

Abend Code	Count
ASRA	2
ASRB	2
ASRD	4





Key Takeaways

Syncsort Ironstream + ITSI = bought time

1. Only **Syncsort Ironstream**[®] gives you real-time comprehensive visibility
2. You **can** correlate information from all enterprise platforms – **including mainframe**
3. ITSI provides a great way to surface and visualize essential system metrics

Bend the space-time continuum and stay ahead of problems...

BEFORE they become a REAL problem!

Thank You

Don't forget to **rate this session** in the
.conf2017 mobile app

splunk> .conf2017

Want to Learn More About ITSI at .conf2017?

Tuesday
September
26th, 2017

- ▶ **Ready, Set, Go! Learn From Others - The First 30 Day Experiences of ITSI Customers:** Tuesday, September 26th, 2017 12:05 PM- 12:50 PM Room Salon C
- ▶ **Splunk ITSI Overview:** Tuesday, September 26th, 2017 1:10 PM-1:55 PM Room 147 AB
- ▶ **PWC: End-to-End Customer Experience:** Tuesday, September 26th, 2017 2:15 PM-3:00 PM Room 143ABC
- ▶ **RSI: Operational Intelligence: How to go From Engineering to Operationalizing IT Service Intelligence Where the Rubber Meets the Road:** Tuesday, September 26th, 2017 2:15 PM-3:00 PM Room147AB
- ▶ **Cardinal Health: Ensuring Customer Satisfaction Through End-To-End Business Process Monitoring Using Splunk ITSI:** Tuesday, September 26th, 2017 3:30 PM-4:15 PM Room143ABC
- ▶ **ITSI in the Wild - Why Micron Chose ITSI and Lessons Learned From Real World Experiences:** Tuesday, September 26th, 2017 4:35 PM- 5:20 PM Room Salon C

Wednesday
September
27th, 2017

- ▶ **Event Management is Dead. Time Series Events are the Means to the End, not the End Itself. See How Event Analytics is Revolutionizing IT:** Wednesday, September 27th, 2017 11:00 AM-11:45 AM Ballroom C
- ▶ **Triggering Alerting (xMatters) and Automated Recovery Actions from ITSI:** Wednesday, September 27th, 2017 1:10 PM- 1:55 PM Room Salon C
- ▶ **Leidos - Our Journey to ITSI:** Wednesday, September 27th, 2017 2:15 PM-3:00 PM Room147AB
- ▶ **How Rabobank's Monitoring Team Got a Seat at the Business Table by Securing Sustainability on Competitive Business Services Built on Splunk's ITSI:** Wednesday, September 27th, 2:15-3:00pm Room 147AB
- ▶ **Here Comes the Renaissance: Digital Transformation of the IT Management Approach:** Wednesday, September 27th, 2017 3:30 PM-4:15 PM Room Salon C

Thursday
September
28th, 2017

- ▶ **The ITSI 'Top 20' KPI's:** Thursday, September 28th, 2017 10:30 AM-11:15 AM Room Salon C
- ▶ **Automation of Event Correlation and Clustering with Machine Learning Algorithms – An ITSI Tool:** Thursday, September 28th, 2017 11:35 AM- 12:20 PM Room Salon C
- ▶ **Event Management is Dead. Time Series Events are the Means to the End, not the End Itself. See How Event Analytics is Revolutionizing IT:** Thursday, September 28th 11:35 AM - 12:20 PM in Ballroom B
- ▶ **IT Service Intelligence for When Your Service Spans Your Mainframe and Distributed ITSI:** Thursday, September 28th, 2017 1:20 PM-2:05 PM Room Salon C