NASTEL

Driving Business Transaction Performance ®

Delivering improved service with Nastel AutoPilot

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Summary
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Enterprise Stakeholders

Middleware Team

- DEV, TEST & PROD
- Management of messaging backbone

Application Support

- Faster time to repair (MTTR)
- Identify root cause of MQ issues

Application Developers

- Self-Service tooling for Dev, QA & UAT testing
- Improved quality of new releases

Enterprise Architects

Application Owners

- Improve processes
- Reduce costs
- Prevent performance problems

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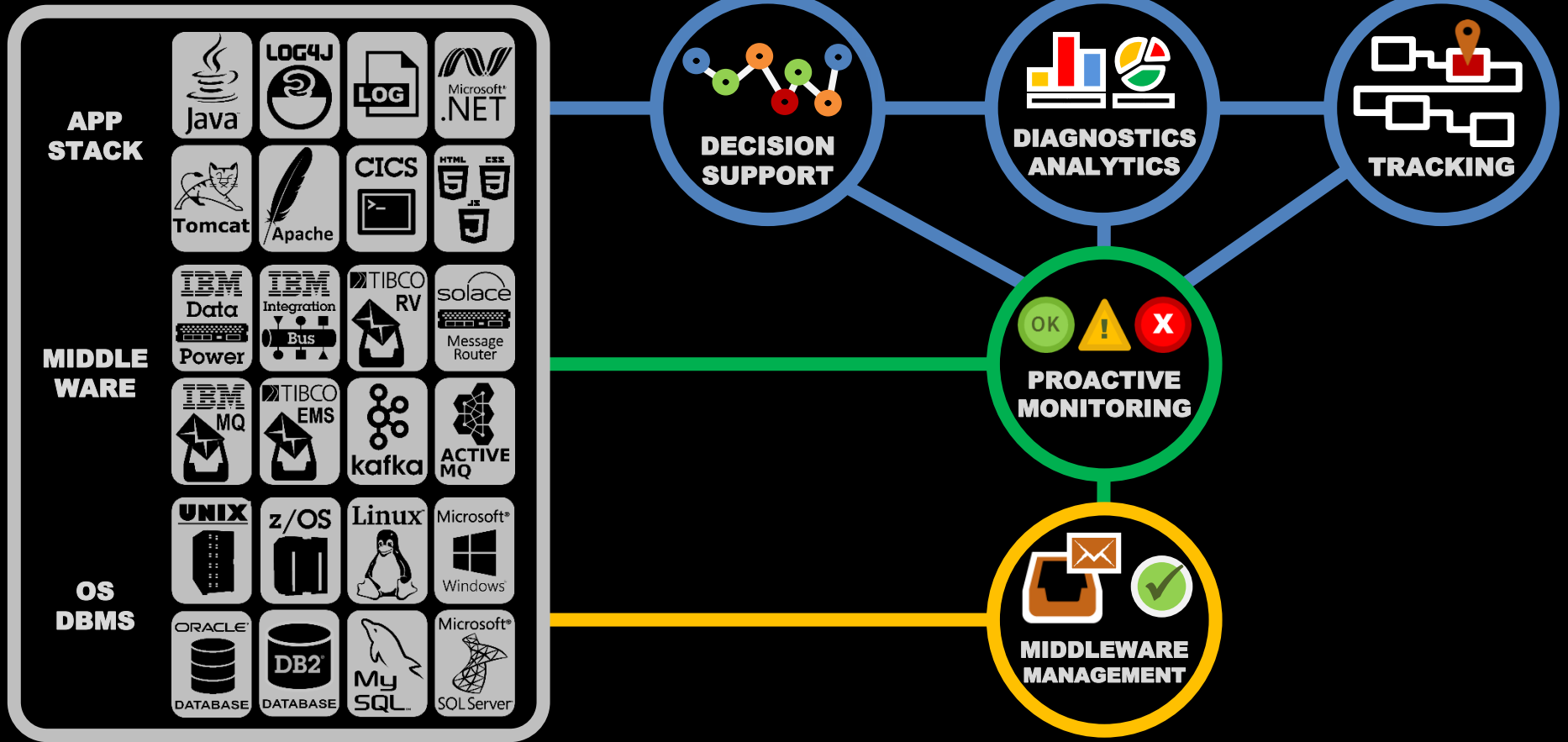
Nastel's Solution – 360° Situational Awareness™



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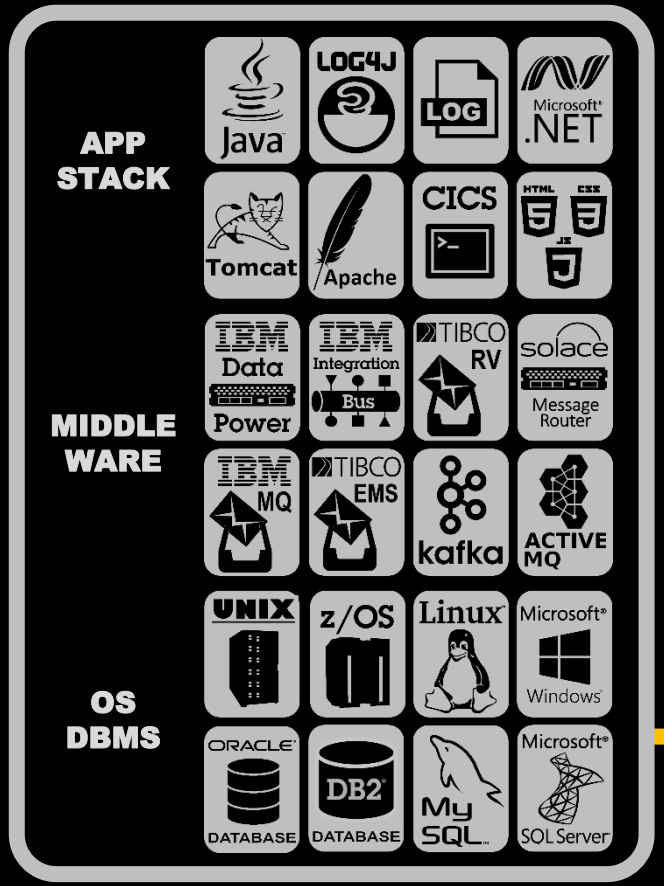
Middleware Management - Challenges



- **No single point of control for multiple middleware, multiple platforms**
- **Middleware teams unable to delegate authority to Dev/Ops**
- **No personalized views of infrastructure**
- **Application Development teams cannot provision needed middleware objects**
- **Application Development teams cannot easily test message flows**
- **Middleware teams challenged by software upgrades & migrations**

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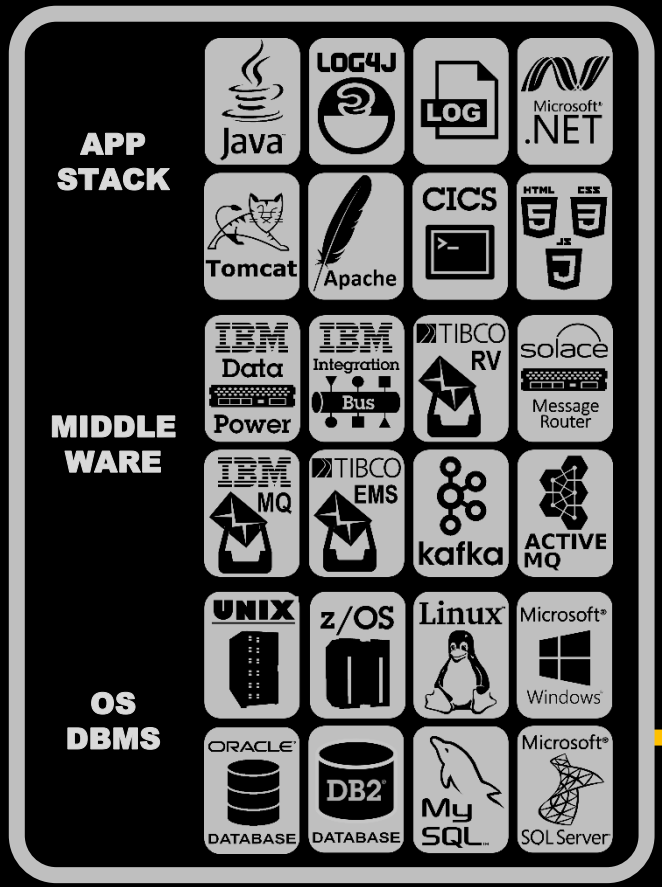
Middleware Management – Nastel's Solution



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- **Automated discovery of middleware estate**
- **Simplified configuration management**
- **Easily manage and rollback changes**
- **Full audit trail of changes (who, what, where)**
- **Full message management & search**
- **User group and role management**
- **Secure, granular delegation of specific authorities to Dev/Ops**

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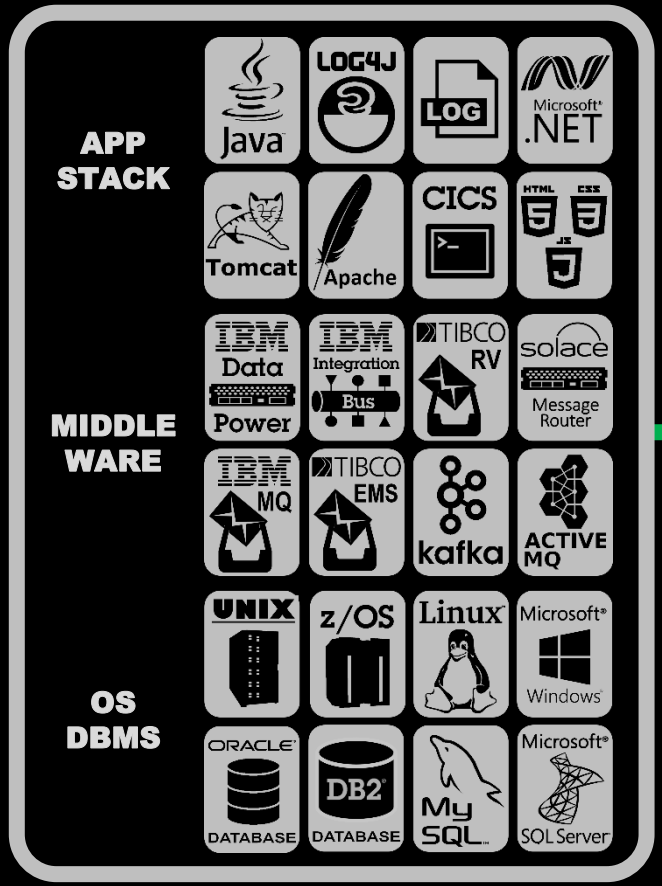
Proactive Monitoring - Challenges



- Unmonitored application assets
- Incomplete views of application estate
- Monitoring via complex scripting
- Inability to see troublesome trends
- Multiple teams using diverse tools
- Difficulty to isolate root cause
- False alerts
- “War-room” syndrome
- Operational and reputational risk

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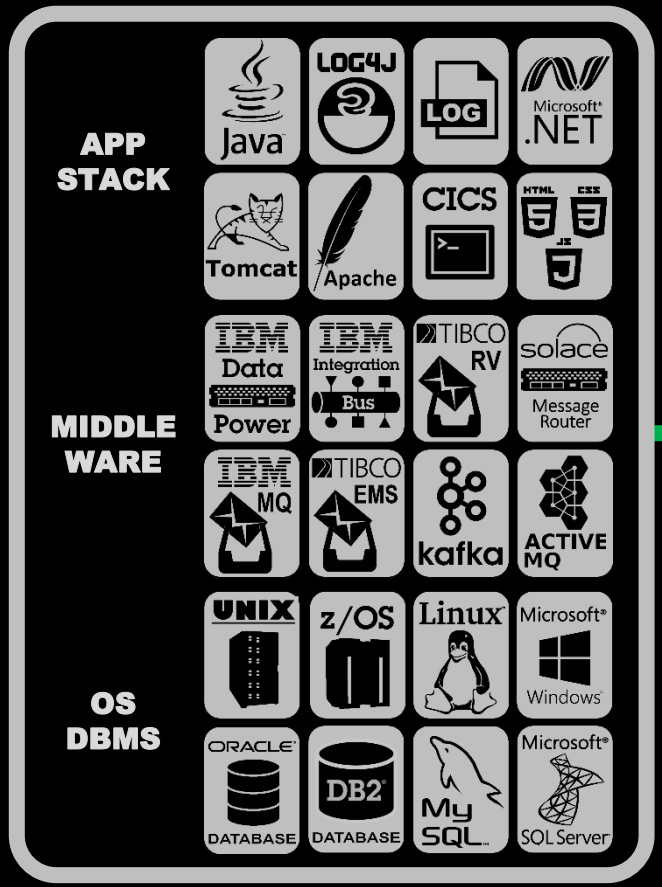
Proactive Monitoring - Nastel's Solution



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- Easily managed, policy-based dashboards
- Elimination of false alerts
- Trend & pattern detection
- Notifications & proactive alerts

- Improved MTBF
- Automated actions
- Improved application availability & reliability
- Reduced MTTR
- Reduction of operational risks

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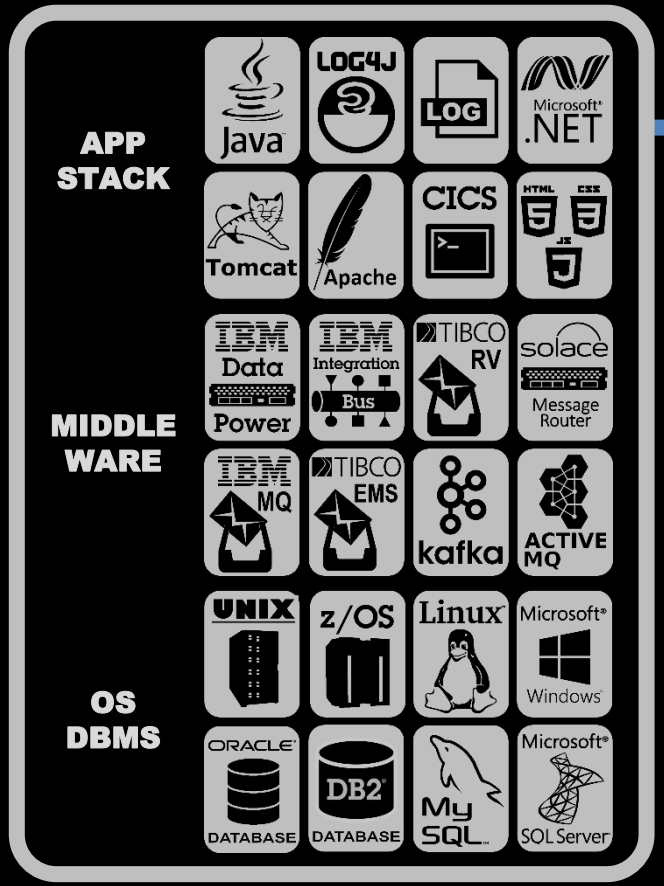
Diagnostics, Analytics & Tracking - Challenges



- Inconsistent transaction performance
- “Missing” orders | invoices | trades …
- No historical data or trend analysis
- Inability to detect anomalies
- No analytics in business context
- Perishable time-series data
- Regulatory compliance obligations
- Service Level Agreements
- Operational risks
- Audit requirements

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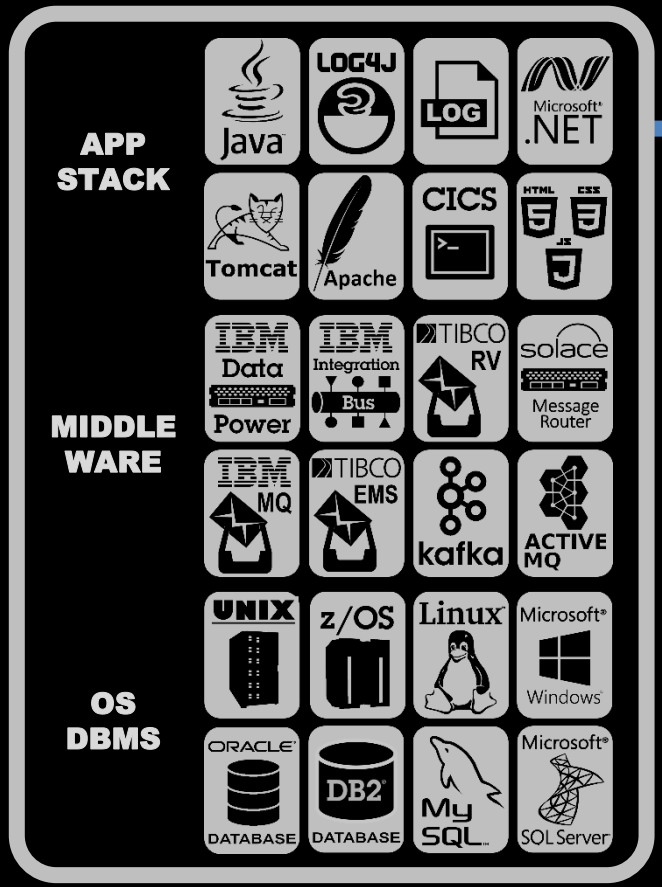
Diagnostics, Analytics & Tracking – Nastel's Solution



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- **Full visibility of business flows: resources, applications, events, timings, topologies**
- **Isolate root causes, facilitate triage**
- **Set objectives and manage compliance (SLA's, regulations)**
- **View workflow performance in business context**
- **360° Situational Awareness**

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Nastel Solution Summary

Nastel Xray

Predictive Analysis of your business applications using machine learning, ergonomic communications, advanced visualization and automation

Nastel AutoPilot

Proactively & Holistically Monitor Infrastructure, Platform, Middleware and Applications

Nastel Navigator

Manage Middleware, securely, efficiently and effectively

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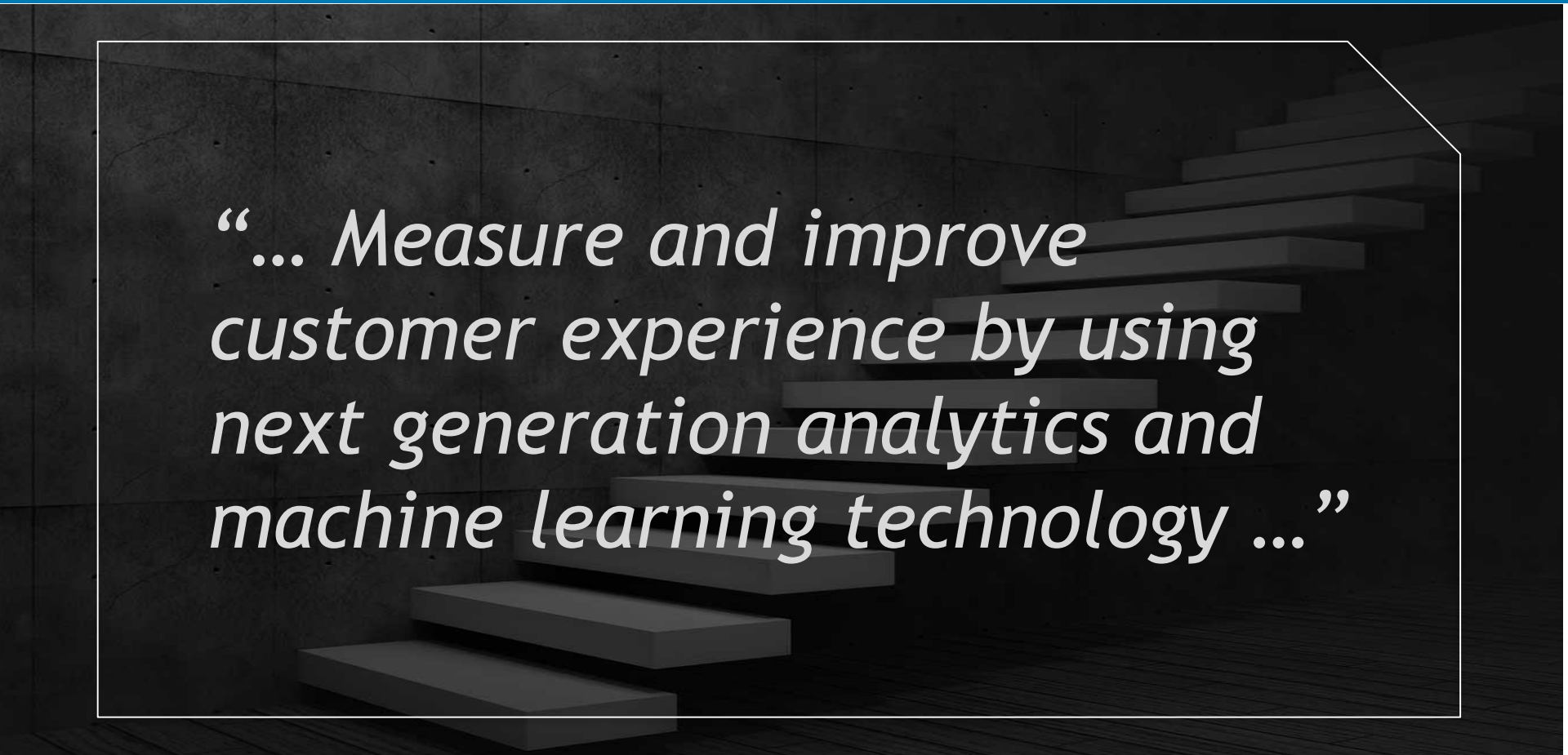
Our Mission



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Nastel Technologies: What we do

IT Operational Analytics & Intelligence

- Detect anomalies, reduce MTTR
- Improve productivity, customer experience
- Powered by machine learning, latest technology

Application Performance Management

- Visibility into apps, transactions, business flows
- 360 degree Situational Awareness
- Performance, compliance (SLA's, regulations)

Middleware Management & Monitoring

- Automated discovery & configuration management
- Message management & full audit trail
- Highly granular delegation of authority to Dev/Ops

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Our Clients Speak for Us

FINANCIAL SERVICES

HEALTHCARE

TELCO

ENERGY

TRAVEL

WHOLESALE DISTRIBUTION

CHEMICALS

RETAIL

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Why Nastel?
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Why us?

Technology	Easy to use, deploy and consume
	Same stack for on premise and SaaS
	Built on open source stack + FatPipes™
	Unique data query & analytics language (JKQL)
Scale	Built on big data & clustered computing platform (FatPipes)
	Native multi-tenancy for SaaS and on-premise
	Linear horizontal and vertical scaling (FatPipes)
Customer Focus	Develop custom features and extensions
	Personal 24x7 support with inline portal
	Direct access to our R&D and roadmap
	Flexible licensing: SaaS, perpetual, term, subscriptions

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Use Cases
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Common Business Challenges of Our Customers

Financial Services – Avoiding stiff penalties for failing to reconcile with Federal Reserve funds transfers deadlines

Financial Services – Reducing risk by tracking actual or potential breaches in breaches in trade compliance (e.g., Dodd-Frank trade reporting)

Healthcare – Tracking electronic health records and claims processing in healthcare insurance with strict adherence to HIPAA rules

Retail – Capturing of user experience data in real time from POS for improved business planning

Telco – Slashing support costs for for on-line order management of services

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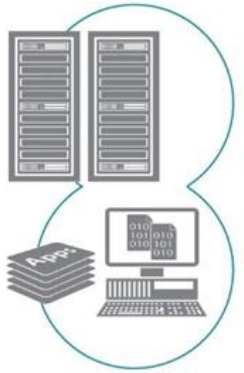
Case Study: Large Bank

Problem: SLA & compliance violations with resultant penalties

- No visibility of messaging transactions
- No ability to locate “lost” transactions or identify “latent” transactions
- No ability to categorize transactions by business lines & asset groups
- Financial and reputational impact visible to senior management

Solution: AutoPilot transaction tracking, monitoring & analytics

- Across entire application stack: Mainframe, Unix, Linux, Java, IBM MQ
- End-to-end transaction monitoring and visibility
- “Business milestone” views understandable to business users
- Rapid identification of problem transactions and missed SLA’s
- Ability to prioritize messaging transactions by multiple criteria



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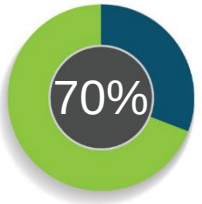
Case Study: Retail Organization

Problem: Order fulfillment application problems

- Reputational damage due to delays in order fulfillment
- Lost orders & customer attrition
- Event monitoring system overwhelmed; ticket backlog at service desk
- Majority of problems required Tier 3 support ($$$)

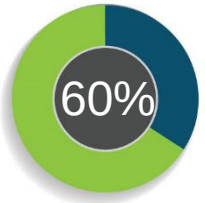
Solution: AutoPilot CEP automation

- Replaced in-house “eyes-on-screen” event monitoring system
- Situational awareness, automated detection of anomalies
- Dramatically reduced order failures, improved customer experience
- Increased bottom-line revenue, reduced support costs
- Solution deployed & providing proven value in less than 2 months



Reduction in support tickets

Problems handled by Tier 1 support



Reduction in lost orders

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Case Study: Telecom Organization

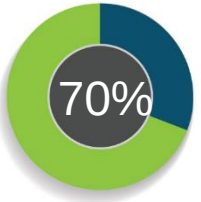
Problem: Web application issues and dissatisfied customers

- Poor order-entry web application causing customer dissatisfaction
- 80% of orders had problems or were lost
- Metrics for each system segment not shared between engineers
- Expensive Tier 3 & development staff spending time on troubleshooting
- No resources available for development of new services

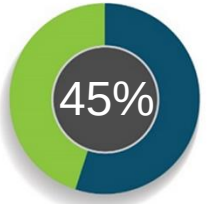
Solution: AutoPilot predictive and prescriptive analytics

- Replaced in-house, reactive monitoring system with proactive analytics
- Dramatically reduced need for expensive Tier 3 and development staff
- Predictive analytics help to rapidly identify data patterns and root cause

Reduction in service issues



Reduction in Tier 3 support costs



Reduction in MTTR

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Problems we have seen

- Messages routed incorrectly and no one knew where they were
- Auditors reviewed MQ Admin rights and found security gaps
- Company committed to delivery SLA and had to way to measure
- Cluster change caused message to loop between 2 queue managers
- Application browsed all messages on a queue, waited 1 second and repeated. At one point, there were 3000 messages on the queue

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Insight through Capture, Analytics & Visualization

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Natural query language

- Ability to ask any question about application performance, logs, transaction and metrics using JKQL English like query language.

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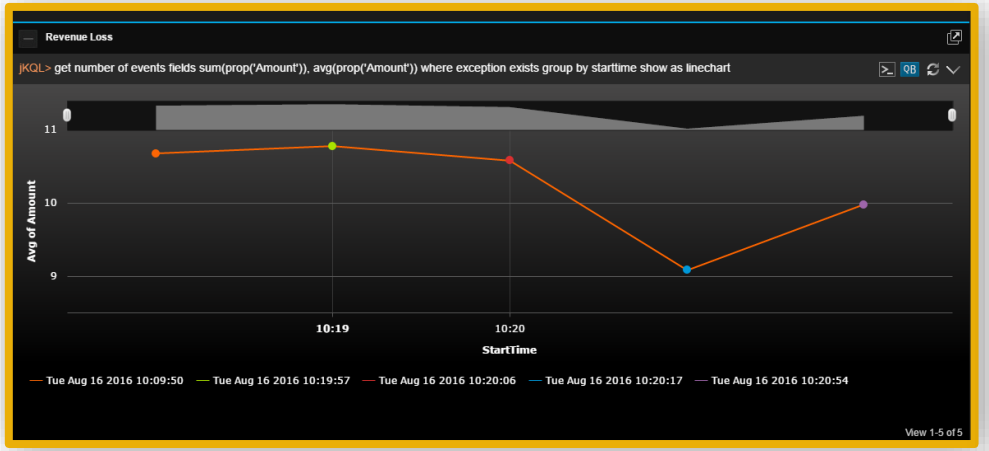
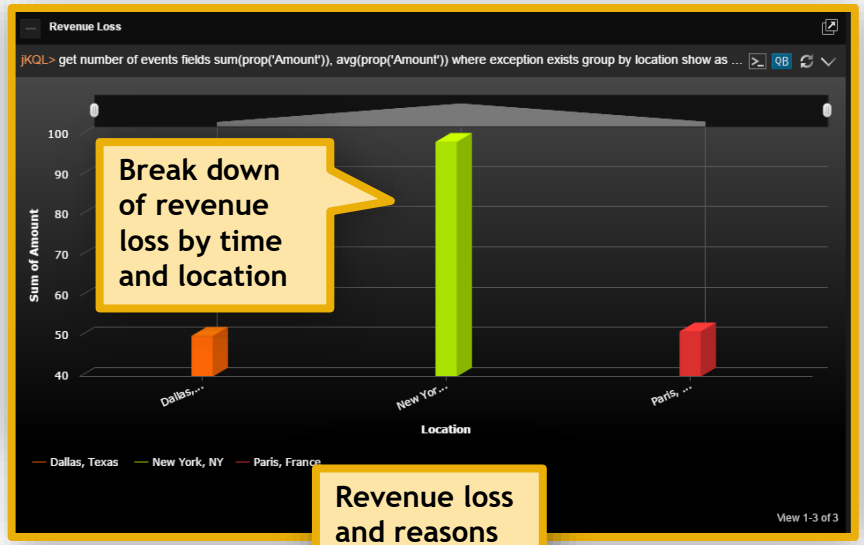
Revenue potentially lost due to performance problems





Revenue loss and reasons why

Dill down into all events responsible for revenue loss

jKQL> Get event for Today where exception exists and location in('Paris, France')

EventName	StartTime	ElapsedTime	EventType	Message	Severity	Amount	Exception
Buy	2016-08-16 10:10:10.5870(	0ms	CALL	Buy pokemon.coin...	ERROR	5.389200000000001	Security Violation
Buy	2016-08-16 10:10:10.5969:	0ms	CALL	Buy pokemon.coin...	ERROR	5.2894000000000005	Security Violation
Buy	2016-08-16 10:09:28.0229!	0ms	CALL	Buy pokemon.coin...	ERROR	5.339300000000001	Security Violation
Buy	2016-08-16 10:10:10.6074(	0ms	CALL	Buy pokemon.coin...	ERROR	4.540900000000001	Security Violation
Buy	2016-08-16 10:10:10.6442!	0ms	CALL	Buy pokemon.coin...	ERROR	4.99	Security Violation

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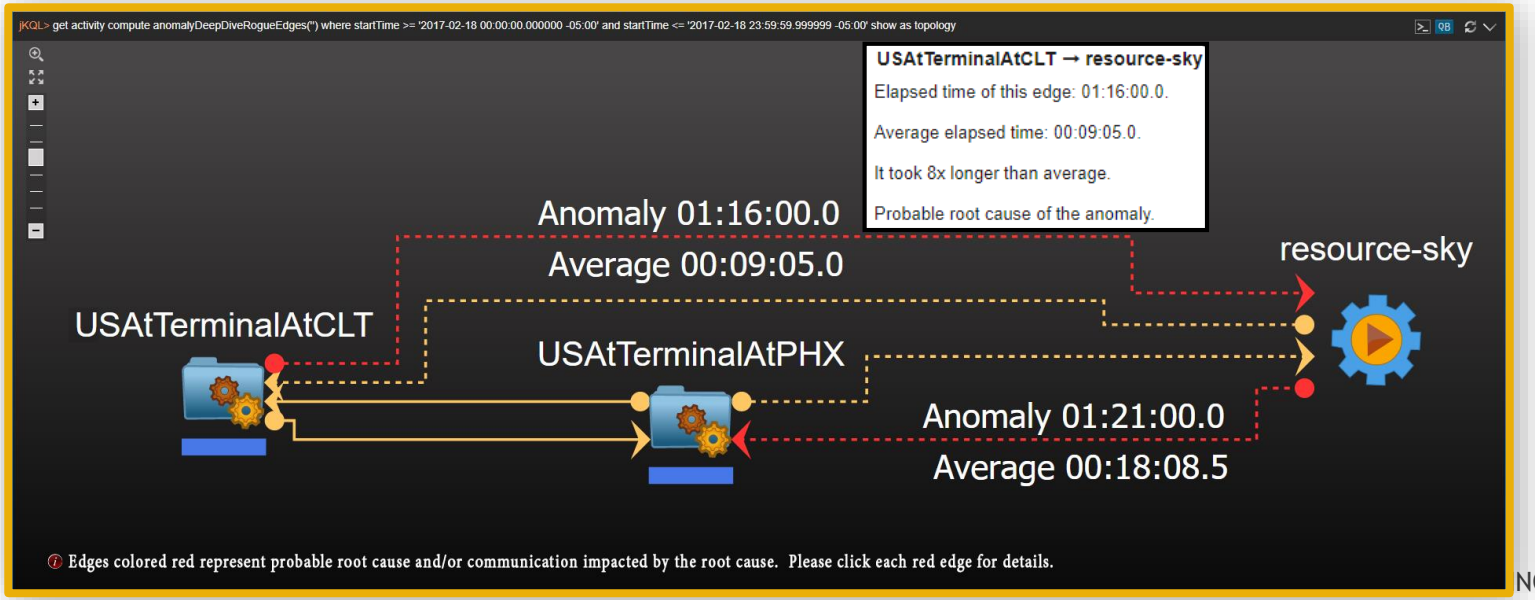
Machine Learning, Anomaly Detection & Root Cause Analysis

- Drilldown to graph of nodes and edges representing topology at time of anomaly
- Topology graph automatically created for all relationships in time window
- Related nodes are automatically stitched together
- Lines between nodes (called “edges”), represent relationships between nodes



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Analysis Statistics

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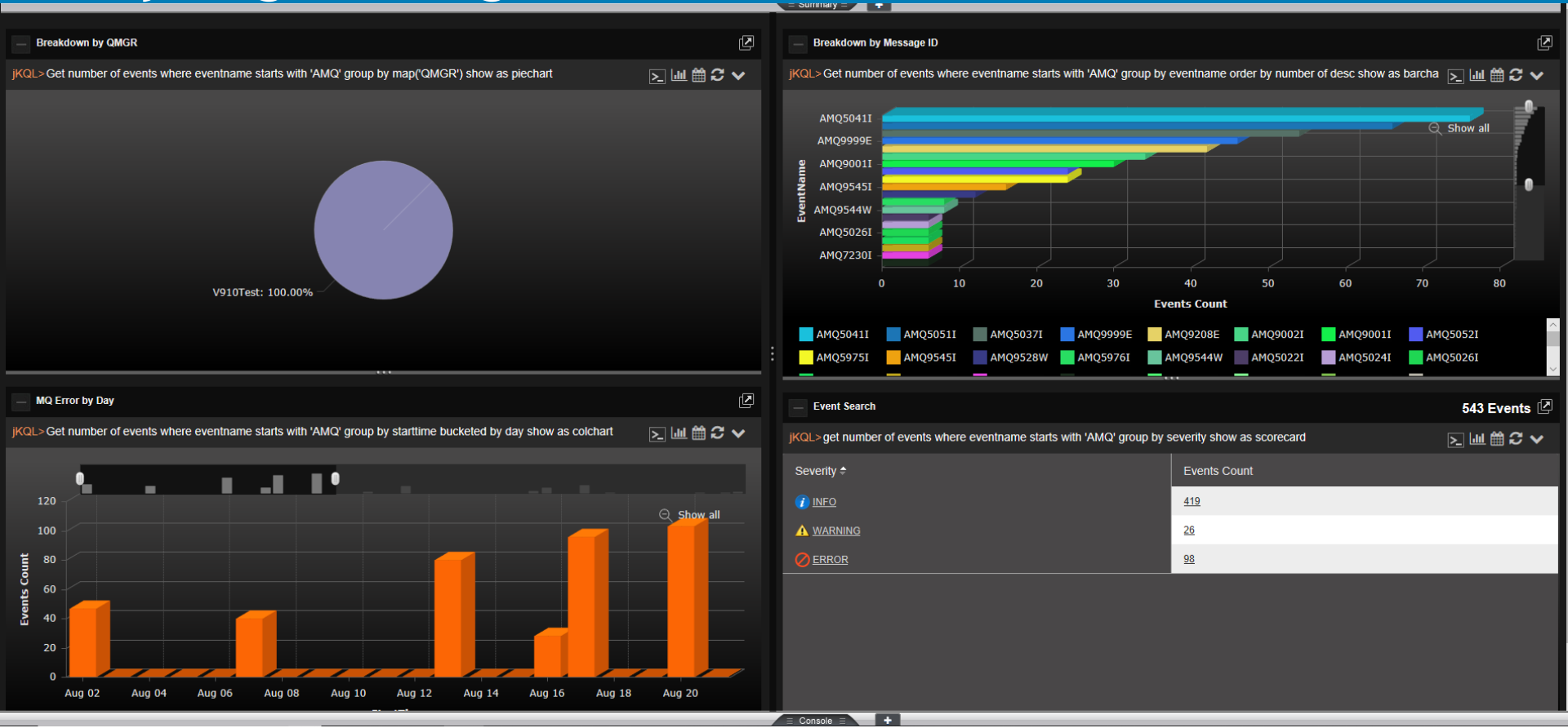
Analyzing MQ Logs



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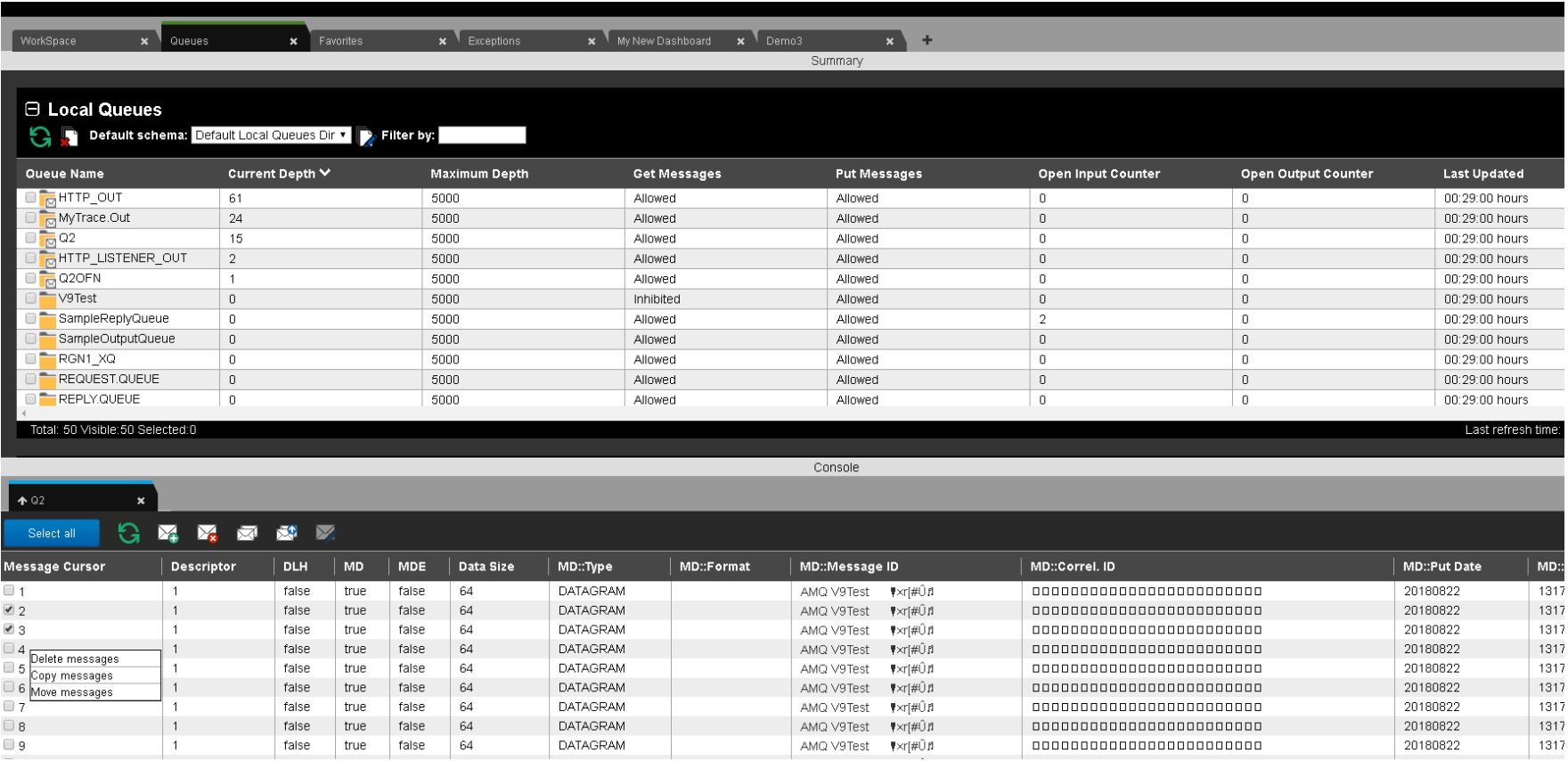
Diagnosing MQ Messages



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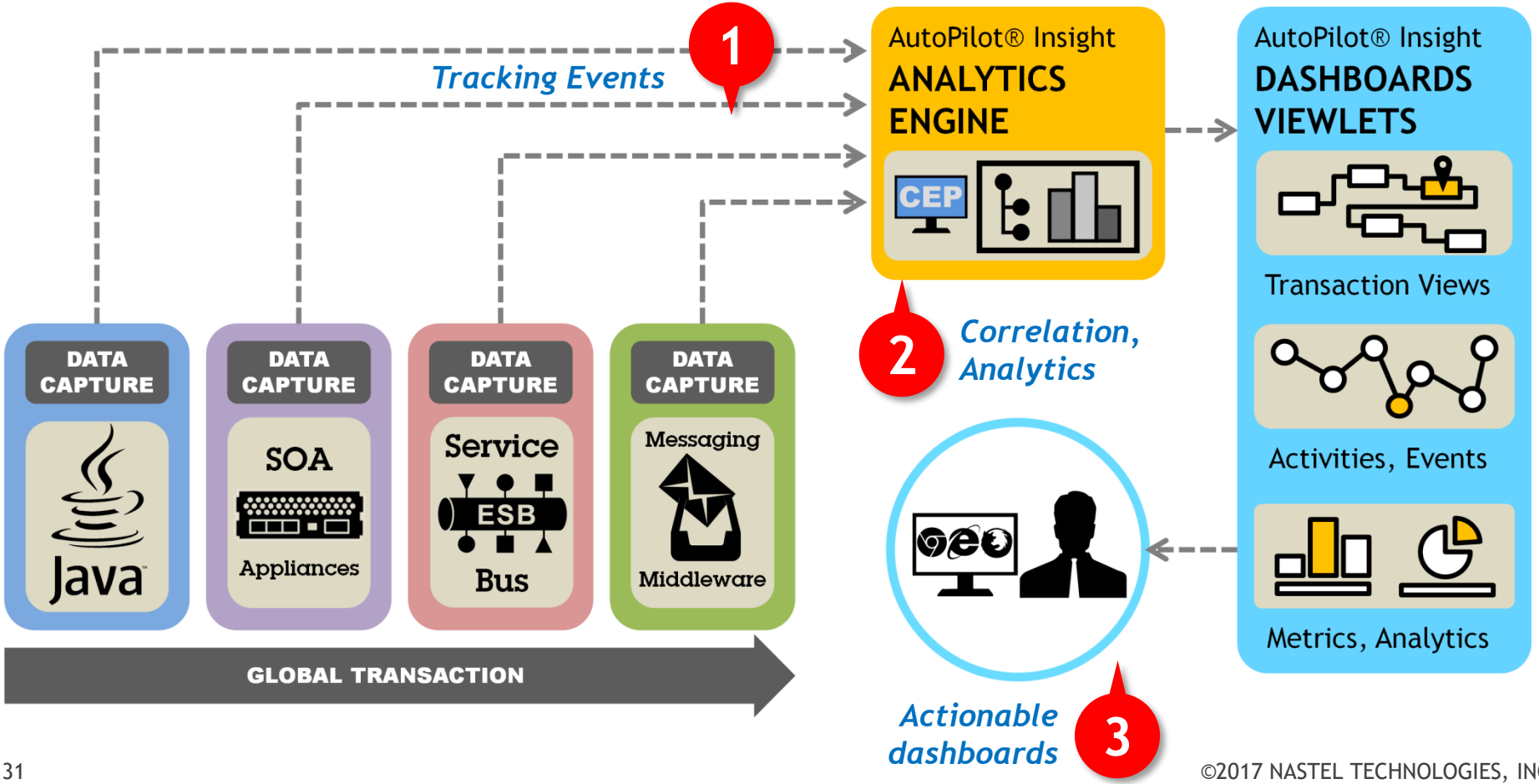
Track & Trace Digital Transactions



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Total Transactions and Transaction Volumes

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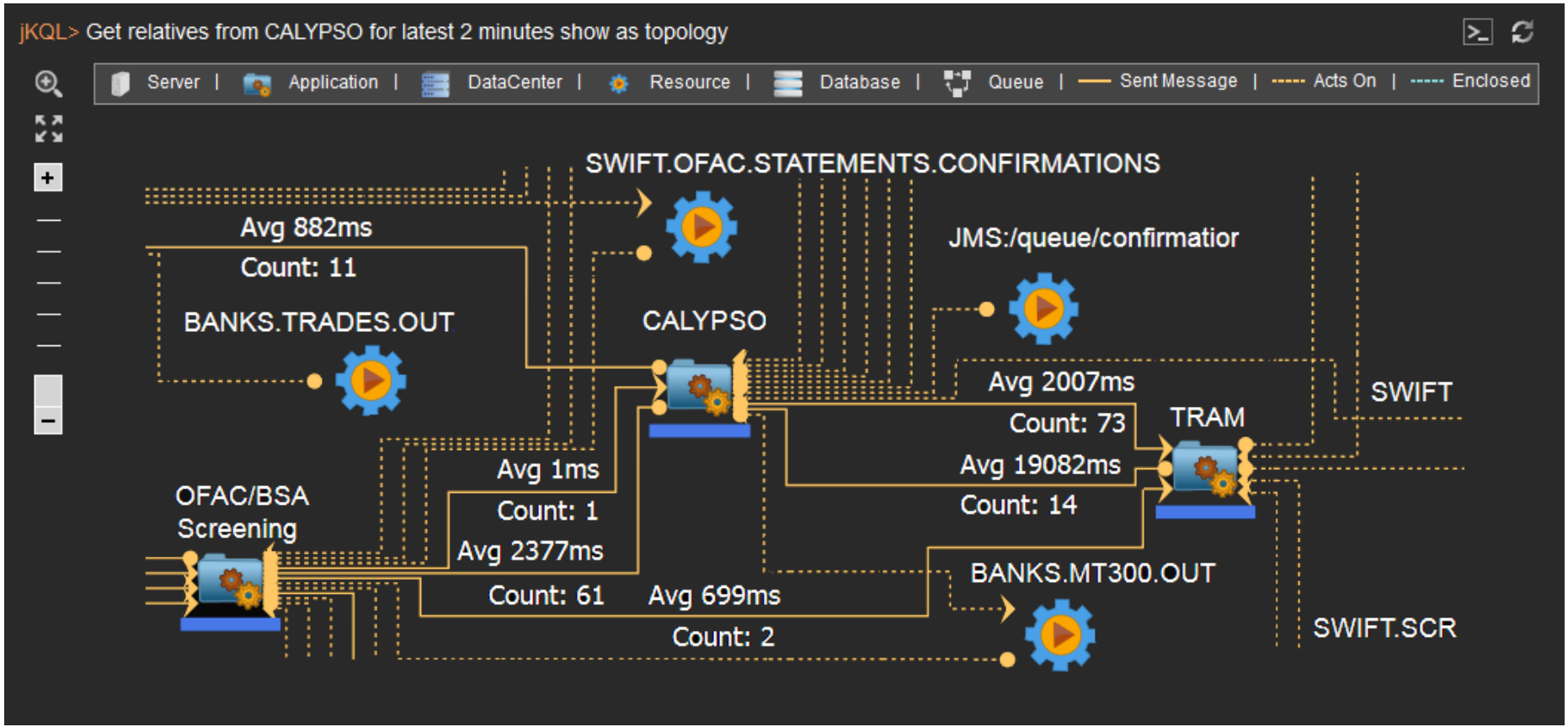
Example Transaction: Financial Services



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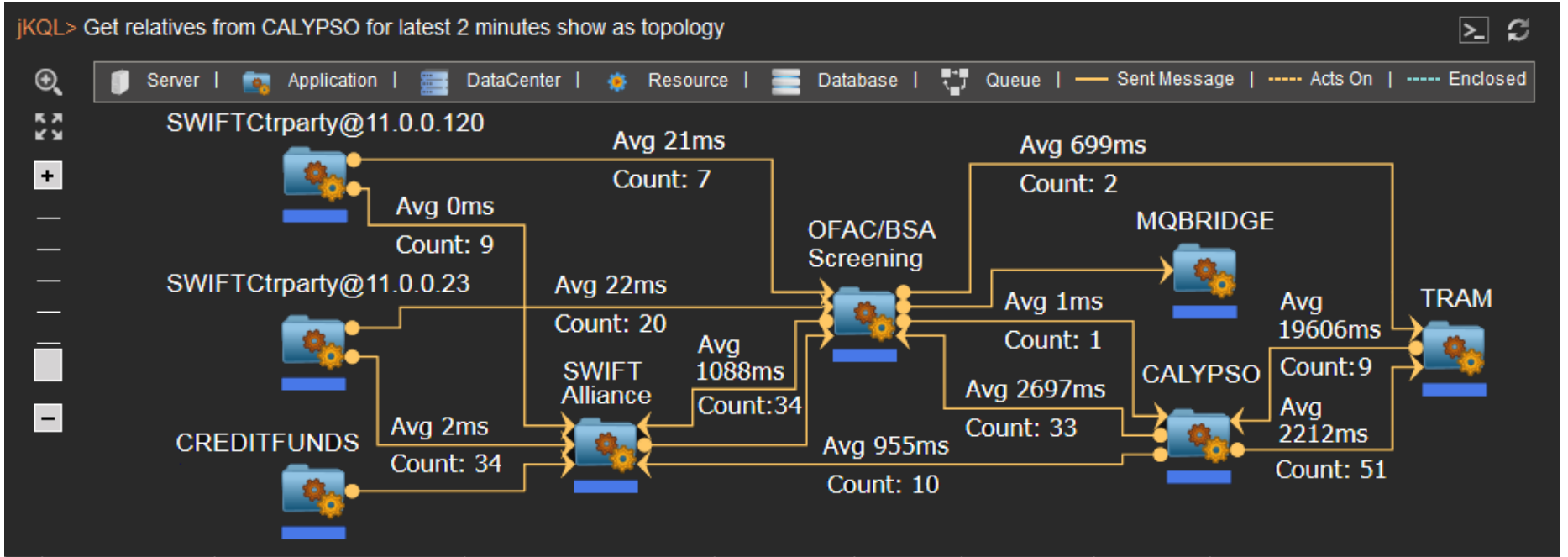
Transaction Trace Details



ActivityName	StartTime	EndTime	ElapsedTime	Severity	EventCount	SnapShot	SourceFQN
CALYPSO-CIBOS	2016-09-17 11:14:57.873000	2016-09-17 11:14:58.906568	1.033s	INFO	1	0	APPL=CALYPSO-CIBOS#SERVER=CALYP
CALYPSO-CIBOS	2016-09-17 11:15:01.415631	2016-09-17 11:15:01.415798	776ms	INFO	2	0	APPL=CALYPSO-CIBOS#SERVER=CALYP
CALYPSO-CIBOS	2016-09-17 11:14:58.849000	2016-09-17 11:15:03.048384	4.199s	INFO	1	0	APPL=CALYPSO-CIBOS#SERVER=CALYP

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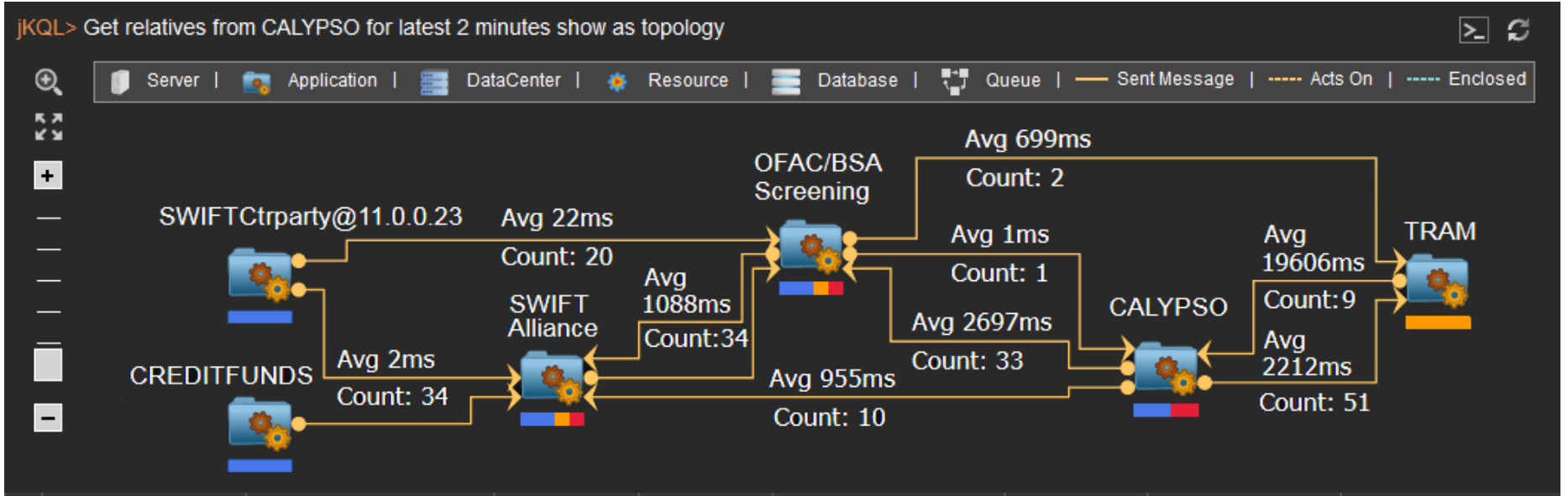
Transaction Analytics, Notifications and Alerts



EventName	StartTime	ElapsedTime	EventType	Message	Severity	Exception	ResourceName
/book-trade	2016-09-23 17:42:57.382000	0ms	OTHER		INFO		book-trade
HTTP/POST/book-trade	2016-09-23 17:42:57.382460	0ms	OTHER	{:15A: :20:LD0006...	INFO		book-trade
QueueSender.send	2016-09-23 17:42:57.382938	13ms	SEND	{:15A: :20:LD0006...	INFO		JMS:/queue/tradein
MQPUT	2016-09-23 17:42:57.396887	2.162s	SEND	{:15A: :20:LD0006...	FAILURE	2010: MQRC_DATA...	BANKS.TRADES.IN.QUEU

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Transaction Activity Trace, Event and Message Details

StartTime	EndTime	ElapsedTime	EventCount	ApplName	ResourceName
2016-09-17 11:14:57.873000	2016-09-17 11:14:59.150676	1.277s	3	CALYPSO-CIBOS,TRAM	BANKS.MT300.DUPS.TO.TRAM.QUEUE,BAN
2016-09-17 11:14:57.922772	2016-09-17 11:14:59.154368	1.231s	23	OFAC/BSA Screening,CALYPSO-CIBOS,M	ATP001.QMGR,BANKS.MT300.DUPS.TO.TRA
2016-09-17 11:15:00.[illegible]	2016-09-17 11:15:00.676586	2.582s	3	CALYPSO-CIBOS,TRAM	BANKS.MT300.DUPS.TO.TRAM.QUEUE,BAN
2016-09-17 11:15:01.[illegible]	2016-09-17 11:15:01.116293	2.978s	23	OFAC/BSA Screening,CALYPSO-CIBOS,M	ATP001.QMGR,BANKS.MT300.DUPS.TO.TRA

Events

Children

jKQL> Get Events where ActivityID in ('3d978bd8-7cb7-11e6-b5de-00259035f22d') order by starttime asc

EventName	StartTime	ElapsedTime	EventType	Message	Severity	Resou
/book-trade	2016-09-17 11:14:59.621000 +02:00	0ms	OTHER		INFO	book-tr
HTTP/POST/book-trade	2016-09-17 11:14:59.621446 +02:00	0ms			INFO	book-tr
QueueSender.send	2016-09-17 11:14:59.621924 +02:00	13ms			INFO	JMS:/qu
MQPUT	2016-09-17 11:14:59.635724 +02:00	2.507s			WARNING	BANKS
MQGET	2016-09-17 11:15:02.117492 +02:00	26ms			INFO	BANKS
MQPUT	2016-09-17 11:15:02.732387 +02:00	24ms			CRITICAL	COUNT
QueueReceive.receive	2016-09-17 11:15:02.760401 +02:00	13ms			INFO	JMS:/qu
HTTP/Response/match-confi	2016-09-17 11:15:02.774201 +02:00	0ms	OTHER	{:15A: :20:LD000618 :22A:NEWT :22B:CONF...	INFO	match-

```
{:15A: :20:LD000618 :22A:NEWT :22B:CONF
:22C:BSUIPP0042CITIZZ :82A:BSUIFRPP
:87A:CITICHZZ :15B: :17R:B :30T:20000614
:30V:20000618 :30P:20010618
:32B:CHF5000000 :30X:20010618
:34E:CHF210000 :37G:4,2 :14D:360/360 :15C:
:53A:BSUICH22 :57A:CITICHZZ :15D:
:57A:BSUICH22 -}
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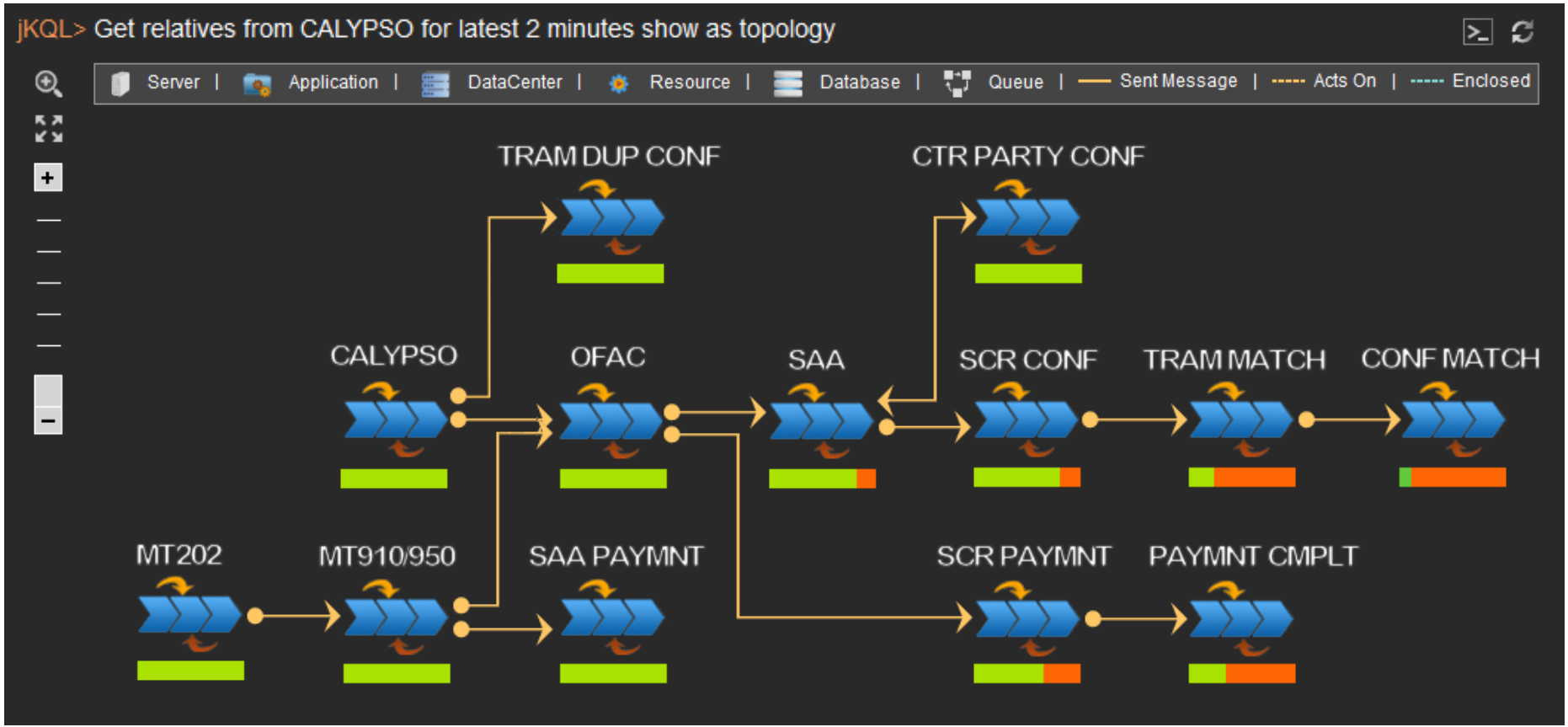
Transaction Milestones: Financial Services Example



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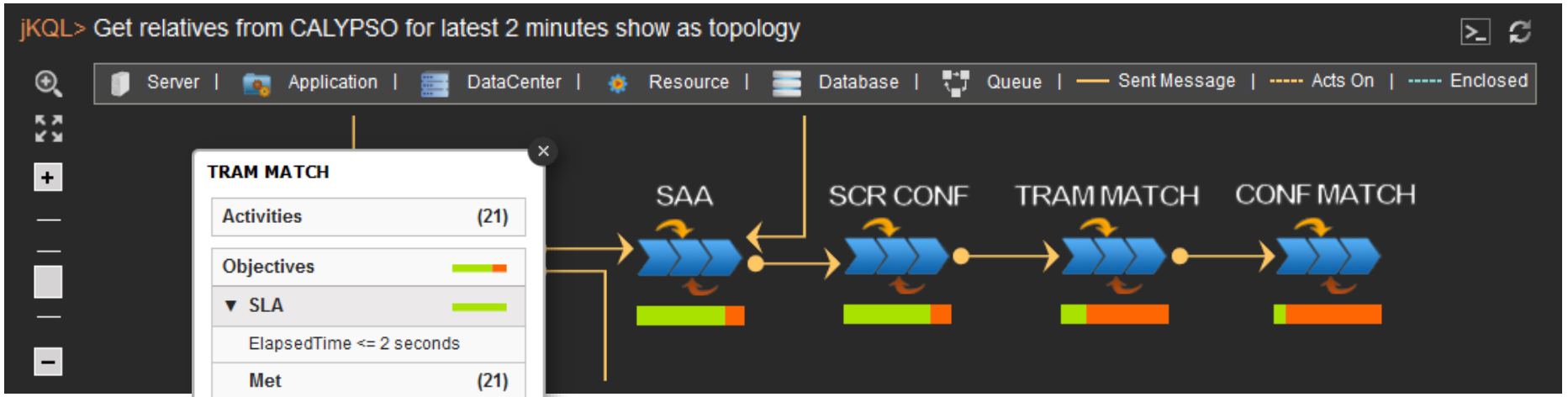
Transaction Milestones - Details



jKQL> Get Activity ... ccessful' show as table

SetName		ActivityName	StartTime	Elapsed	Severity	SourceFQN
TRAM MATC	..., O_Successful._NOT_MET_	TRAM MATCH	2016-09-15 11:21:03.361726	52ms	INFO	APPL=TRAM#SE
TRAM MATC	..., O_Successful._NOT_MET_	TRAM MATCH	2016-09-15 11:20:47.523798	53ms	INFO	APPL=TRAM#SE
TRAM MATCH	O_SLA._MET_: TRAM MATCH, O_Successful._NOT_MET_	TRAM MATCH	2016-09-15 11:21:03.361726	52ms	INFO	APPL=TRAM#SE
TRAM MATCH	O_SLA._MET_: TRAM MATCH, O_Successful._NOT_MET_	TRAM MATCH	2016-09-15 11:20:47.523798	53ms	INFO	APPL=TRAM#SE

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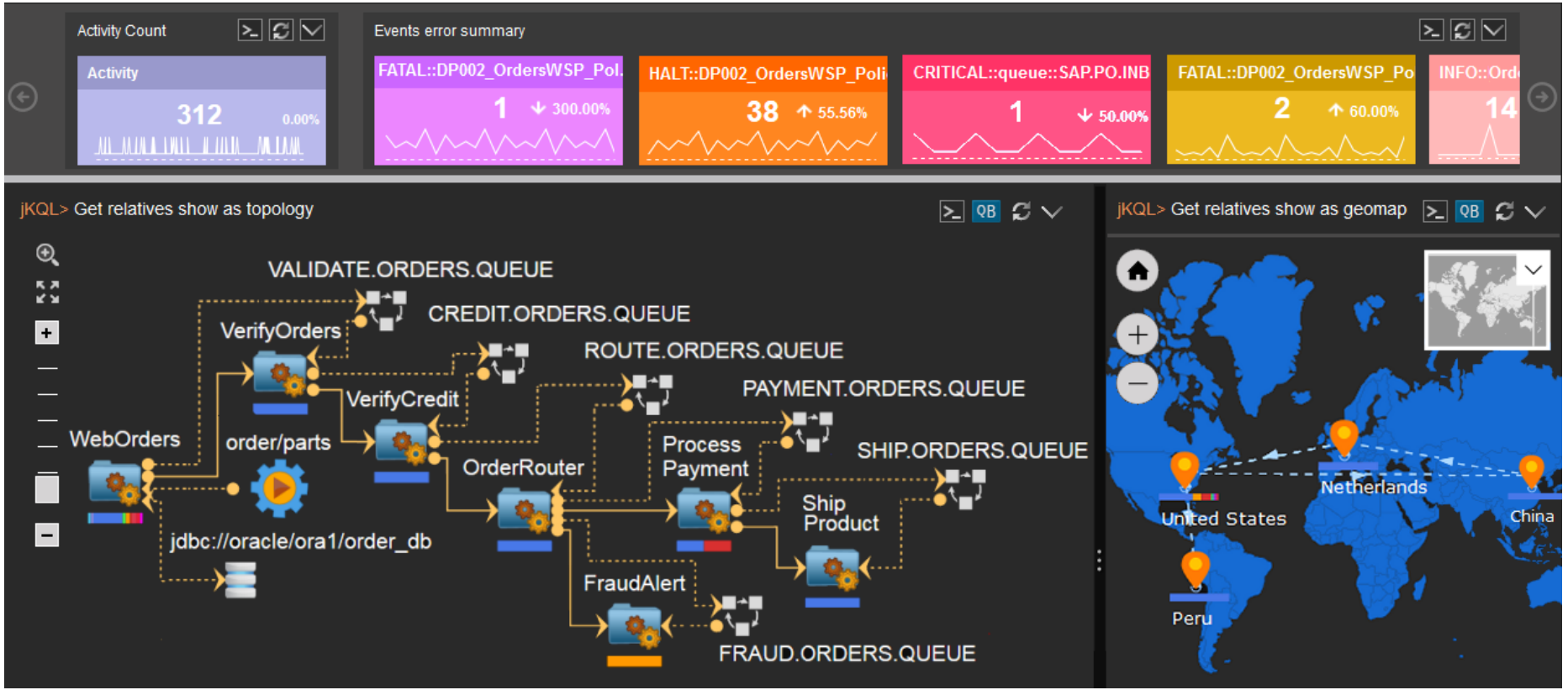
Example Transaction: Retail Organization



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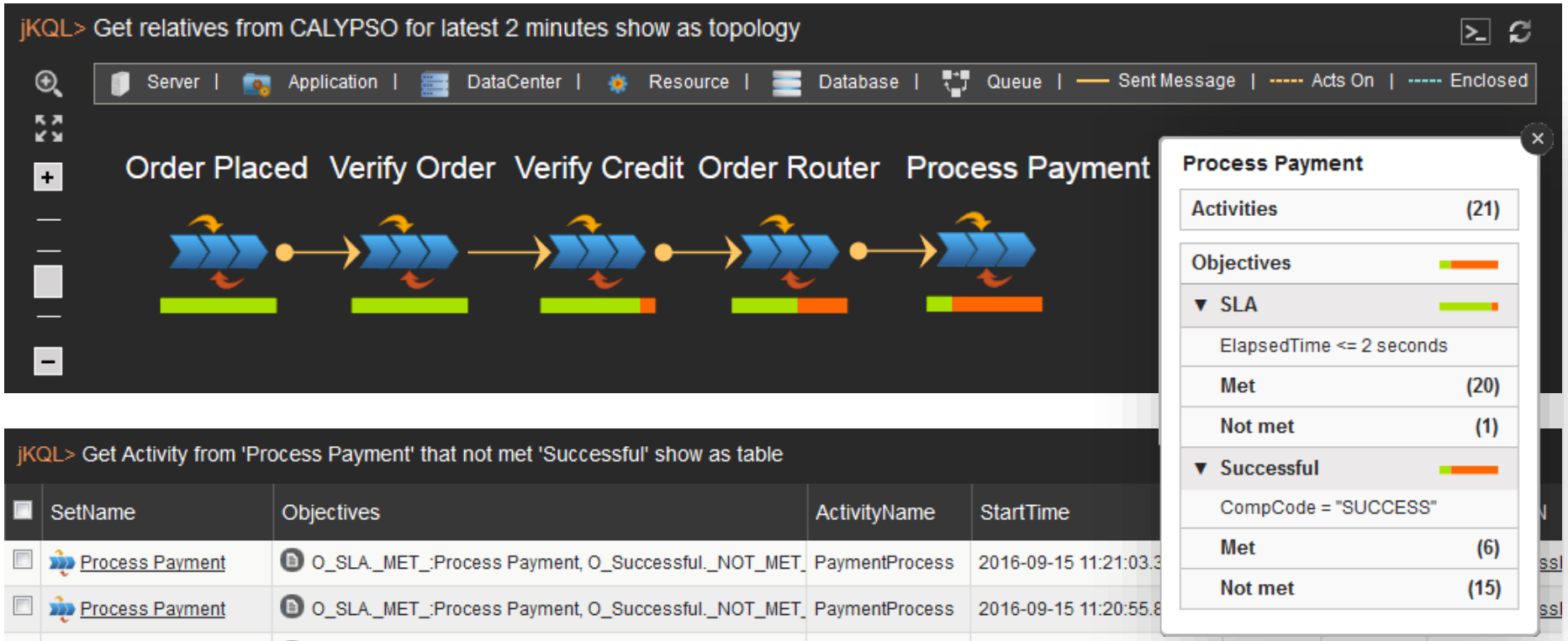
Transaction Milestones: Retail Example



jKQL> Get Activity from 'Process Payment' that not met 'Successful' show as table

SetName	Objectives	ActivityName	StartTime			
Process Payment	O_SLA._MET_:Process Payment, O_Successful._NOT_MET_	PaymentProcess	2016-09-15 11:21:03.3			
Process Payment	O_SLA._MET_:Process Payment, O_Successful._NOT_MET_	PaymentProcess	2016-09-15 11:20:55.8			
Process Payment	O_SLA._MET_:Process Payment, O_Successful._NOT_MET_	PaymentProcess	2016-08-31 13:21:19.936837	44ms	INFO	APPL=Processl
Process Payment	O_SLA._MET_:Process Payment, O_Successful._NOT_MET_	PaymentProcess	2016-09-15 11:20:47.523798	53ms	INFO	APPL=Processl

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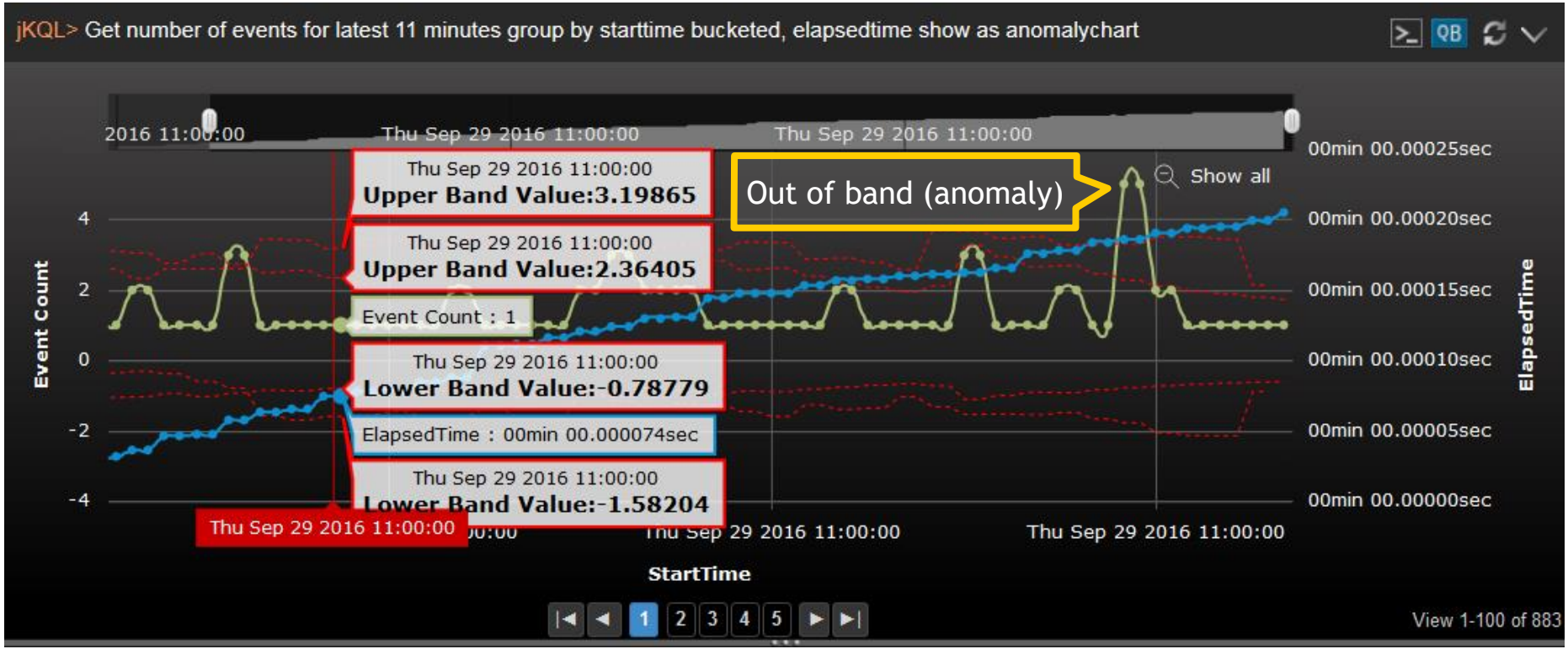
Automatic Detection of Anomalies



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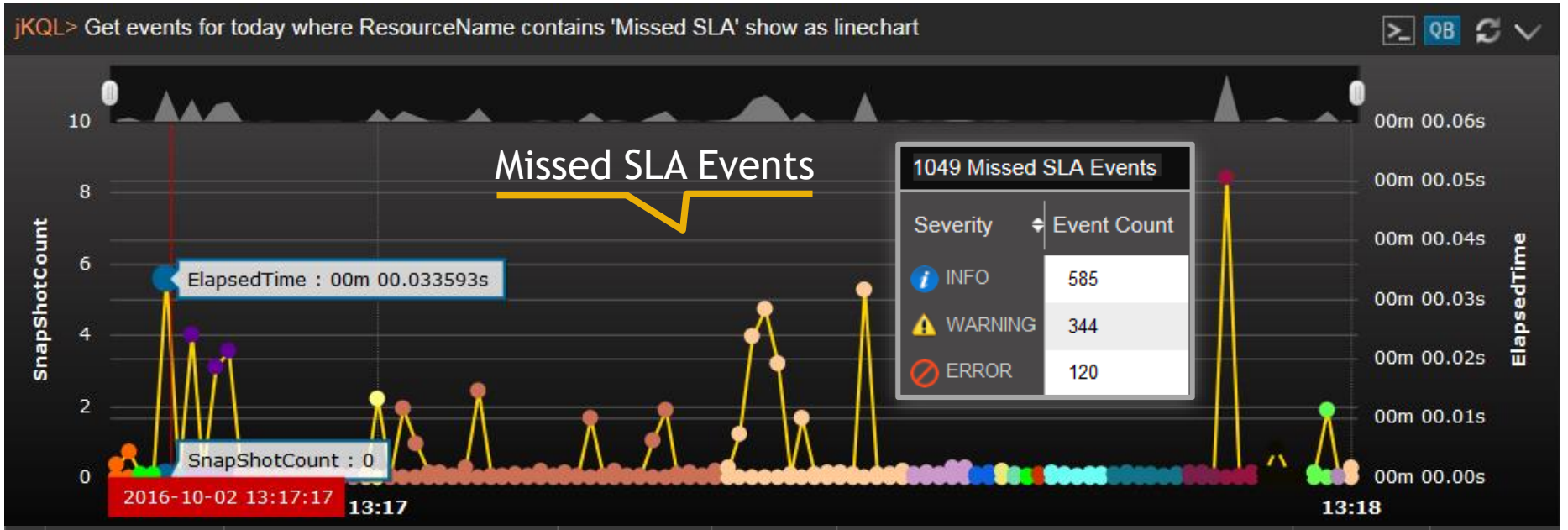
Missed SLA Transactions



EventName	StartTime	ElapsedTime	EventType	Message	Severity	SourceFQN
ReadOrder	2016-05-24 21:30:35.548116 +02:00	25ms	RECEIVE	Process Payment ProductId=8380203...	WARNING	APPL=Proces
ReadOrder	2016-05-24 21:30:48.542458 +02:00	27ms	RECEIVE	Process Payment ProductId=8380203...	WARNING	APPL=Proces
ReadOrder	2016-05-24 21:30:35.548116 +02:00	25ms	RECEIVE	Process Payment ProductId=8380203...	ERROR	APPL=Proces

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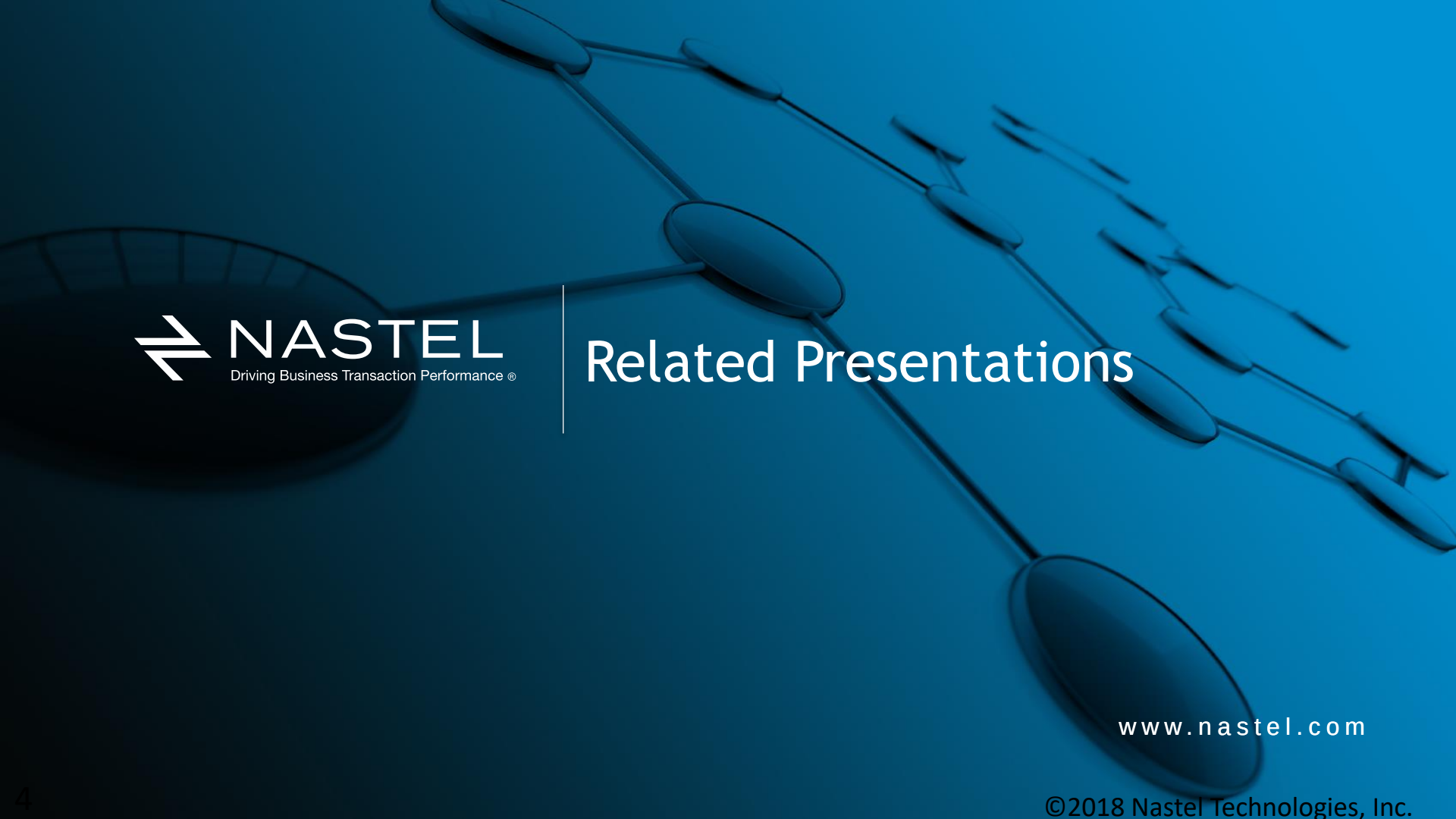

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Time slots: Tuesday at 15:45; Wednesday 14:15

- Using IBM Activity Trace to better understand your application logic \

IBM introduced Activity Tracing with the MQ appliance and is now available on distributed releases of MQ. Activity traces can be used for a variety of use cases. For example, they allow the MQ administrator to understand MQ and application behavior. They also allow application developers and support to determine if the expected MQ calls are being performed. Version 9 of MQ added subscription support which allow further control on who can request and display traces. This session will cover how to activate traces, tips to avoid some of the pitfalls you can encounter, and using IBM sample programs to analyze the data collected.

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Tuesday: 11:00

- Tracking messages in your middleware environment with Nastel X-Ray

Being able to track message as they move through MQ provides a wealth of information. While MQ statistics provide summary information, they often only tell half of the story. With tracking, you are able to see detailed MQ requests that explain the exact behavior of your applications. While using standard MQ tooling provides a good place to start, more complex flows require a more robust tracking tool. In this session, you will learn how Nastel X-RAY allows you to answer questions such as are applications following the coding standards, is the application call efficient, what caused messages to end up in the dead letter queue, and many others.

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Wednesday 11:00

- If you can’t clone yourself, Delegate!

You already have more work to do than you have time to complete and your organization wants you to do more. With Nastel AutoPilot OnDemand, you can delegate work to the responsible teams. It’s not simply a matter of giving everyone access to MQ. You need a secure solution that gives just enough rights to get the job done. You need to satisfiy the auditors when they come knocking at your door. You need to manage MQ as well as the other middleware you have in place. You need a solution that is easy to use and scales to the needs of your organization. In this session, come see how Nastel AutoPilot OnDemand provides these capabilities and more.

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