Visual Studio LIVE! | San Diego
EXPERT SOLUTIONS FOR .NET DEVELOPERS

**Monitor your Applications and Infrastructure**

**Eric D. Boyd**
**Founder & CEO**
**responsiveX**

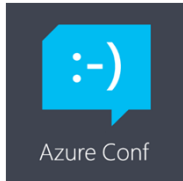Level: Intro-Intermediate

Code Again for the First Time!

# About Me

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responsiveX

**Microsoft® MVP** Most Valuable Professional

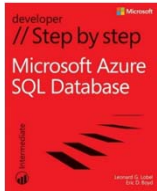Microsoft Regional Director

# I...

speak at lots of conferences



write occasionally



try to be social on twitter

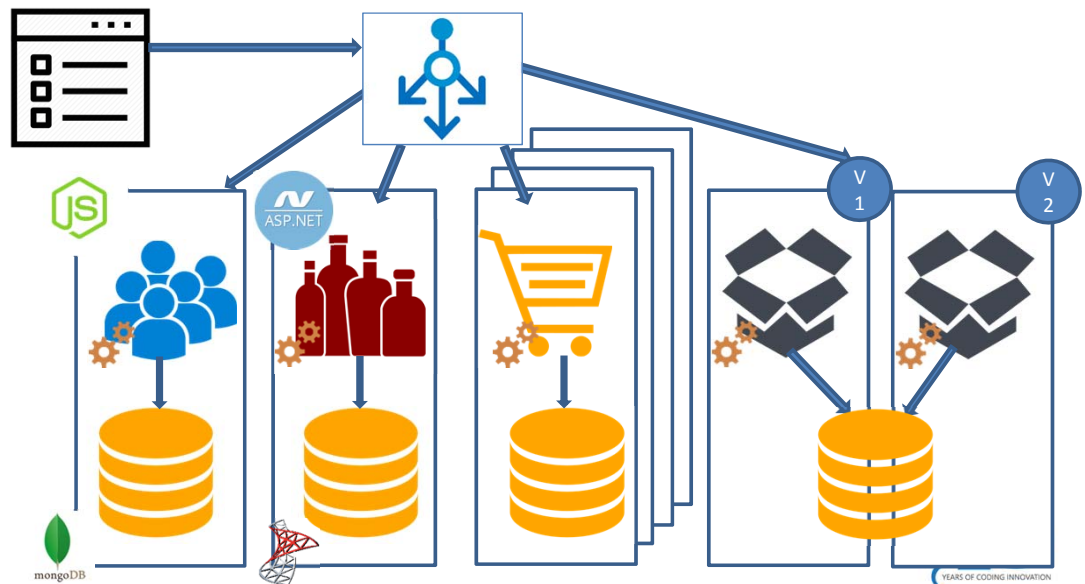@EricDBoyd

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# Agenda

→ Monitoring Needs

→ The New Azure Monitor
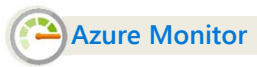
→ Infrastructure and Apps

→ Questions

# Monitoring landscape



# Monitoring Challenges

# Monitoring in Azure



**Azure Monitor**

Azure Subscription

Audit Logs

Azure Resources

Autoscale    Metrics

**Application Insights**

Metrics    Logs

Alerts

**OMS – Log Analytics**

Metrics    Logs

Alerts

# Azure Monitor

**Full observability for your infra, app and network**

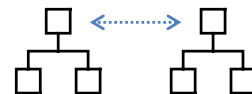Metrics    Log

Common Store
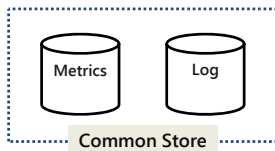
**Unified Monitoring**

A common platform for all metrics, logs and other monitoring telemetry
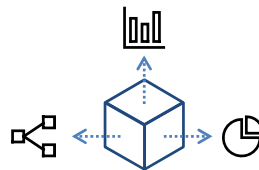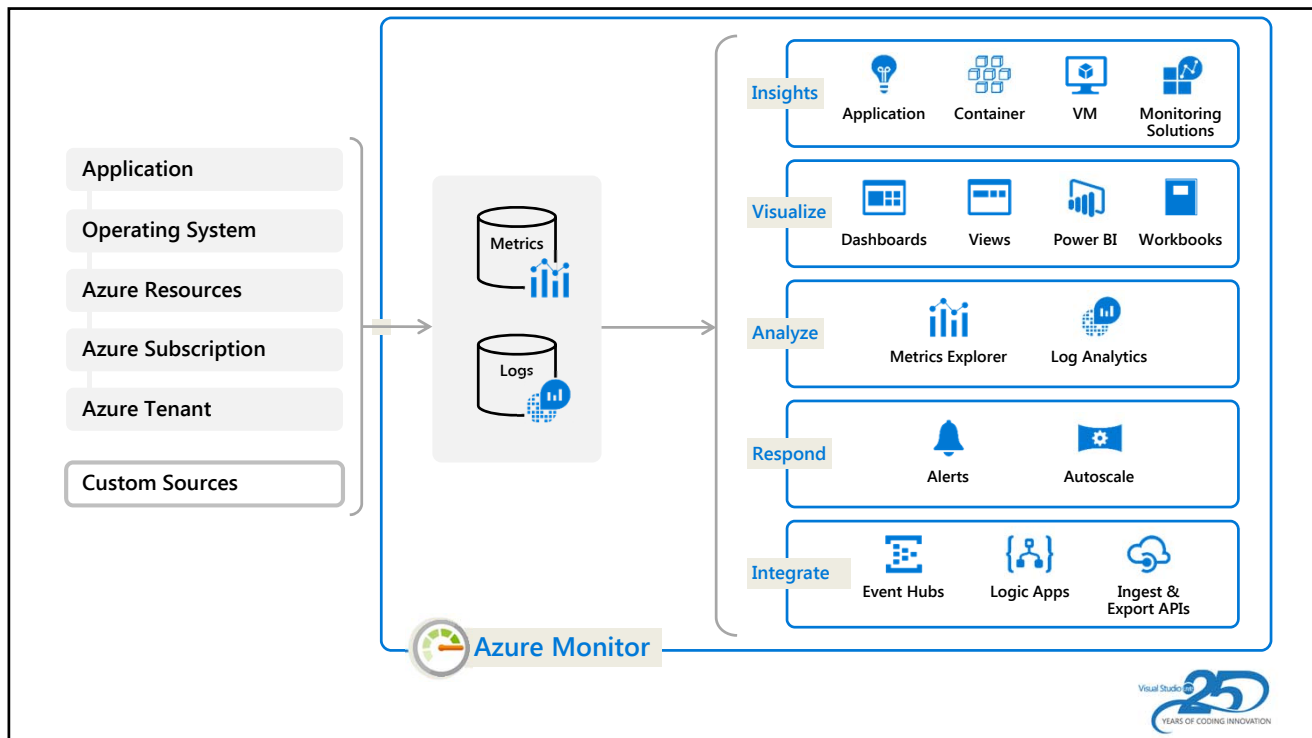
**Data Driven Insights**

Advanced diagnostics and analytics powered by machine learning capabilities
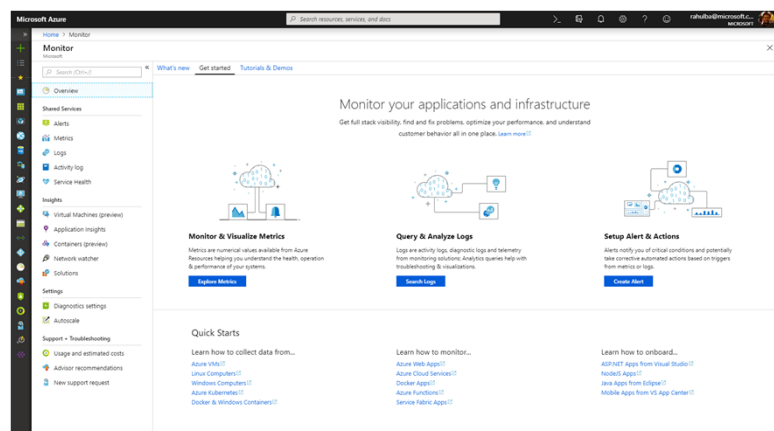
**Workflow Integrations**

Rich ecosystem of popular DevOps, issue management, SIEM, and ITSM tools

## Unified Monitoring

→ One Metrics, One Logs, One Alerts across Azure/on-prem resources

→ Unified offering with App Insights & Log Analytics as integrated features

→ Integration into native Azure resource blades

→ Ability to send custom metrics & custom logs

## Full Stack Visibility in Resource Groups

→ Monitor health state of all resources

→ See alerts firing across app & infra

→ Jump to Application Map or VM Map

→ Drill down into failures or perf issues
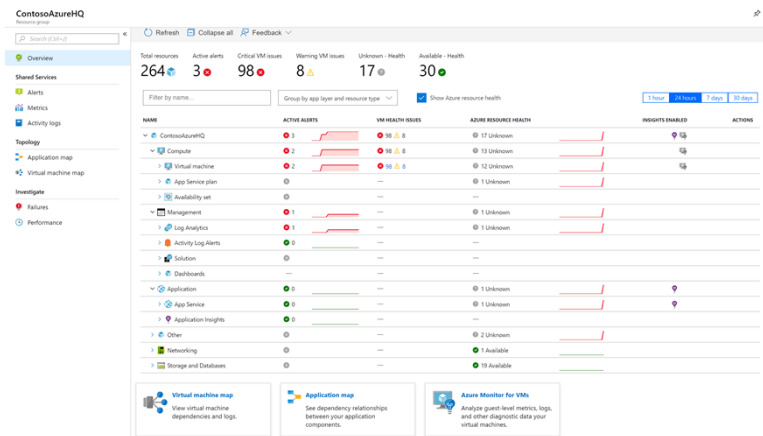


## Rich Insights for Virtual Machines

→ Monitor single VMs or at scale

→ Identify & isolate host-level or guest-level health problems

→ Troubleshoot perf issues like CPU, memory, disk, and network

→ Visualize service dependencies & connection failures in Maps
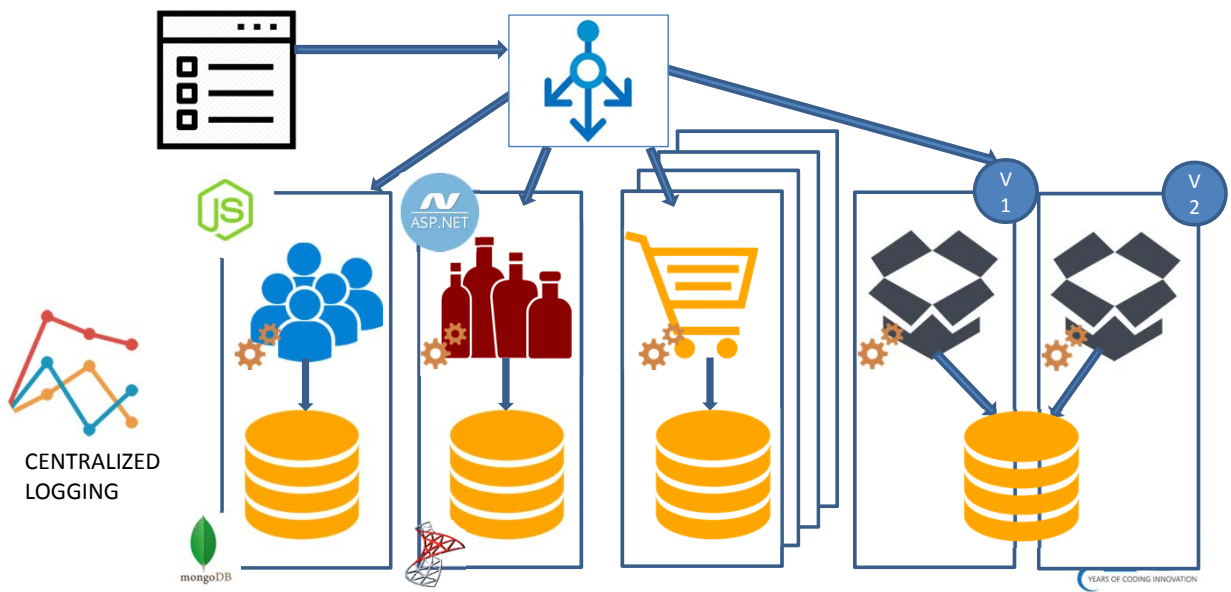
→ Onboard at scale using PowerShell or Azure Policy
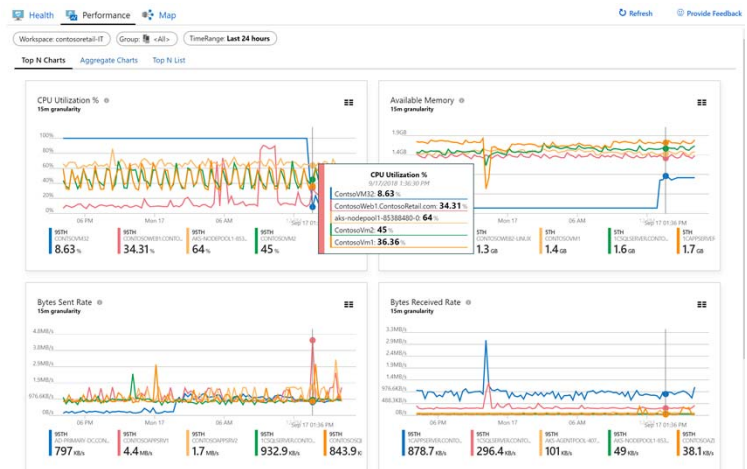
# App Telemetry

- Errors

- Events

- Metrics

- Traces

- Dependencies



# Centralized Logging

# Distributed Tracing & Correlation

| itemType | name | id | operation_ParentId | operation_Id |
|----------|------|-----|--------------------|--------------|
| pageView | Stock page | | STYz | STYz |
| dependency | GET /Home/Stock | qJSXU | STYz | STYz |
| request | GET Home/Stock | KqKwIrSt9PA= | qJSXU | STYz |
| dependency | GET /api/stock/value | bBrf2L7mm2g= | KqKwIrSt9PA= | STYz |

https://github.com/lmolkova/correlation/blob/master/http_protocol_proposal_v2.md

# Diagnose E2E issues with Application Insights

Monitor apps in .NET, JS, Java, Node.js or any language with OSS SDKs

Visualize server/client connections & dependencies with App Map

Track E2E distributed transactions (including for Python & Go)

Drill down to code-level with Snapshot Debugging & Profiling

Understand end-user cohorts, behavior & engagement for planning
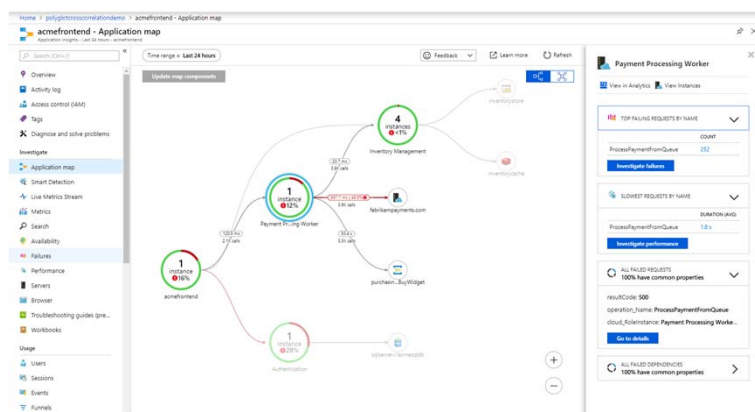
# Advanced Queries with Log Analytics

→ Log Analytics advanced query experience now in Azure Portal

→ Central Analytics Platform across Monitoring, Management, Security

→ Run queries for investigations, statistics & root cause/trend analyses

→ Utilize ML algorithms for clustering and anomaly detection
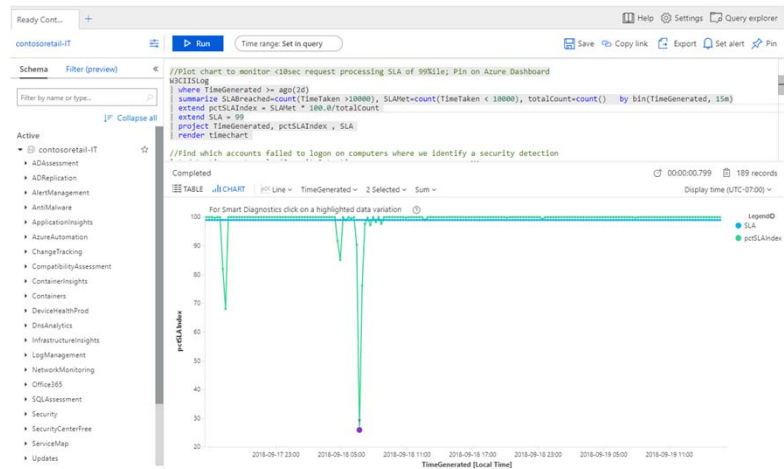


# Drill down into AKS Containers

→ Monitor multi-cluster health & node/pod status

→ View overall perf across nodes, controllers and containers

→ Analyze Kubernetes event & container logs for troubleshooting

→ Understand cluster capacity needs under average or heaviest loads

→ Monitor containers on demand in AKS with virtual nodes
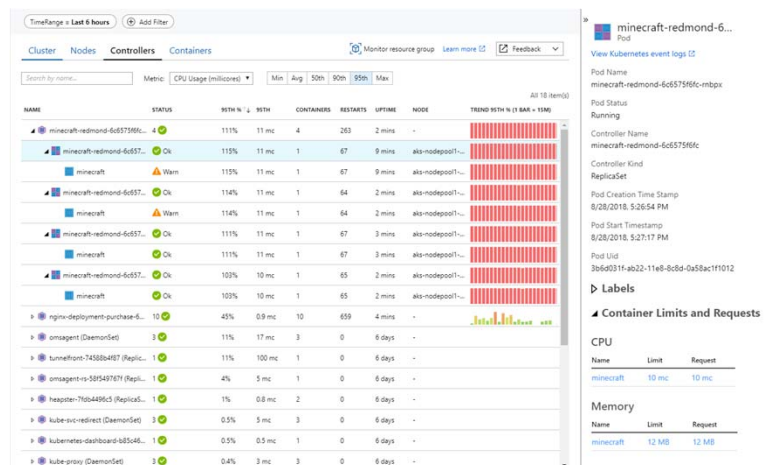
## Monitor Network Health & Traffic

→ Secure and audit your network with Network Watcher Traffic Analytics

→ Discover and monitor ExpressRoute circuits, across subscriptions

→ Monitor ExpressRoute connectivity to virtual networks and O365

→ Monitor connectivity to LoB apps with Service Connectivity Monitor
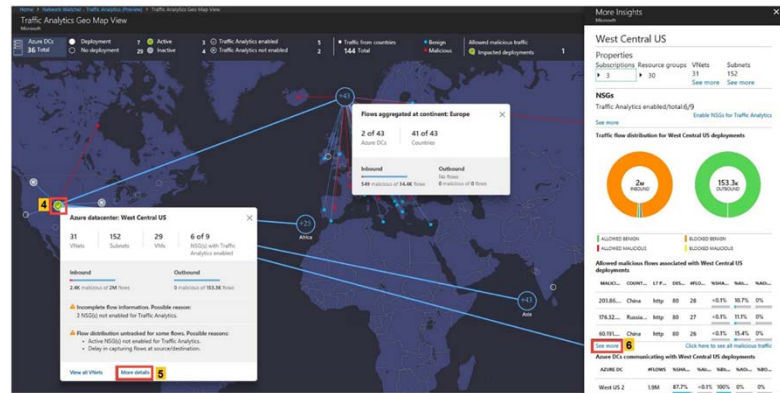


## Continuous Monitoring for DevOps & IT Ops

→ Native IDE integrations in VS (.NET) and VS Code (Node.js)

→ Onboard with Azure Pipelines Release Management & DevOps Projects

→ Configure Pre- or Post-Deployment Quality Gates in Azure Pipelines

→ Run Load Test or Multi-Step Web Test for Synthetic Perf Monitoring

→ Work Item Management with Azure Boards for filing bugs and tracking

→ Alerts & Notifications with automated actions & ITSM integrations
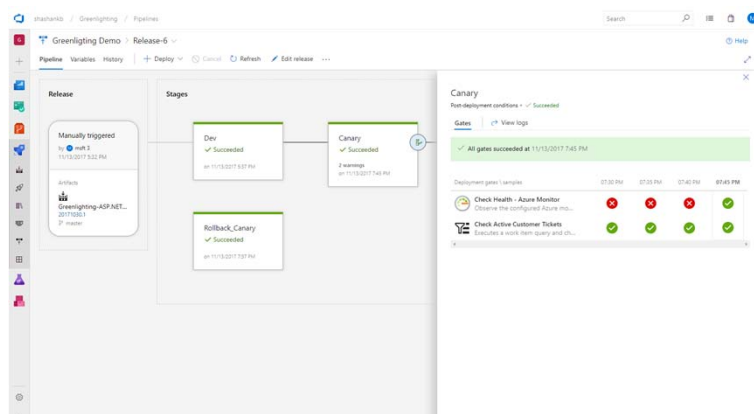
# Integration with Monitoring & SIEM Tools

→ Azure Monitor is best for Azure, and provides both APM & SIEM capabilities

→ Open and extensible to continue using your favorite tools & solutions

→ Integrate your existing APM/Monitoring solutions with Azure Monitor

→ Route telemetry to your SIEM solutions for analytics & security management

# Partner Solutions for Apps & Workloads

- ISVs / MSPs / SIs are extending and building solutions on top of Azure Monitor for specific scenarios & workloads

- Some solutions help monitor diverse technologies deployed on Azure

  – Apache, Citrix NetScaler, F5 SLB, SAP Hana, Oracle, etc.

- Others use their proprietary technologies to provide deeper scenario specific insights or diagnostics workflows
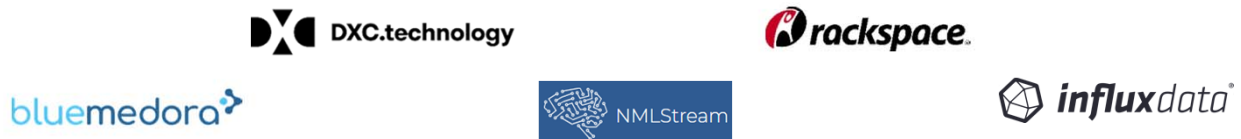
## Azure Monitor & AIOps

→ Proprietary AI based Smart Detection for discovering anomalies

→ Smart Alert Management with Dynamic Thresholds for automatic baselining

→ Partnering with NMLStream to integrate additional ML capabilities for more powerful AIOps

→ Working with ML community internal/external to bring deeper intelligence for DevOps/SRE teams



NMLStream

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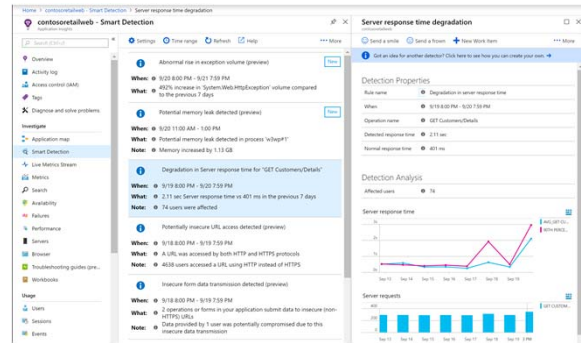
# Resources

**Azure Monitor Documentation**
https://aka.ms/MonitoringDocs

**Resources, Tutorials & What's New**
https://aka.ms/AzMonOverview

**Query Language Course on Pluralsight**
https://aka.ms/KQLPluralsight

# Q&A

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