

AWS
re:Invent

WIN404-R

Managing health of .NET and SQL Server applications on AWS

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Amazon Web Services

Let's introduce ourselves

My name is...

I work at...

My biggest monitoring pain-point is...

AND

My last purchase online was...

Agenda

Monitoring challenges in the DevOps world

CloudWatch Application Insights for .NET & SQL Server

How it works

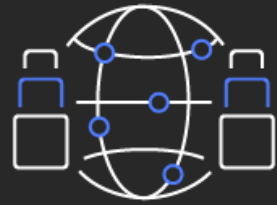
Hands-on labs and demo

Q & A

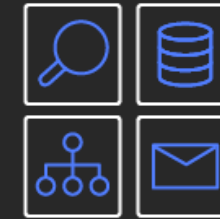
Resources

Monitoring Challenges

Monitoring in the DevOps world



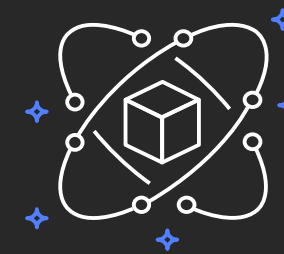
Resource utilization



Monitor multiple individual systems & technologies



Detect and troubleshoot problems



Set up monitoring infrastructure and systems

Amazon CloudWatch



Get visibility

Built-in and custom metrics,
Application and Windows Event logs



Monitor

Alert on anomalies, errors
Perform calculation of metrics

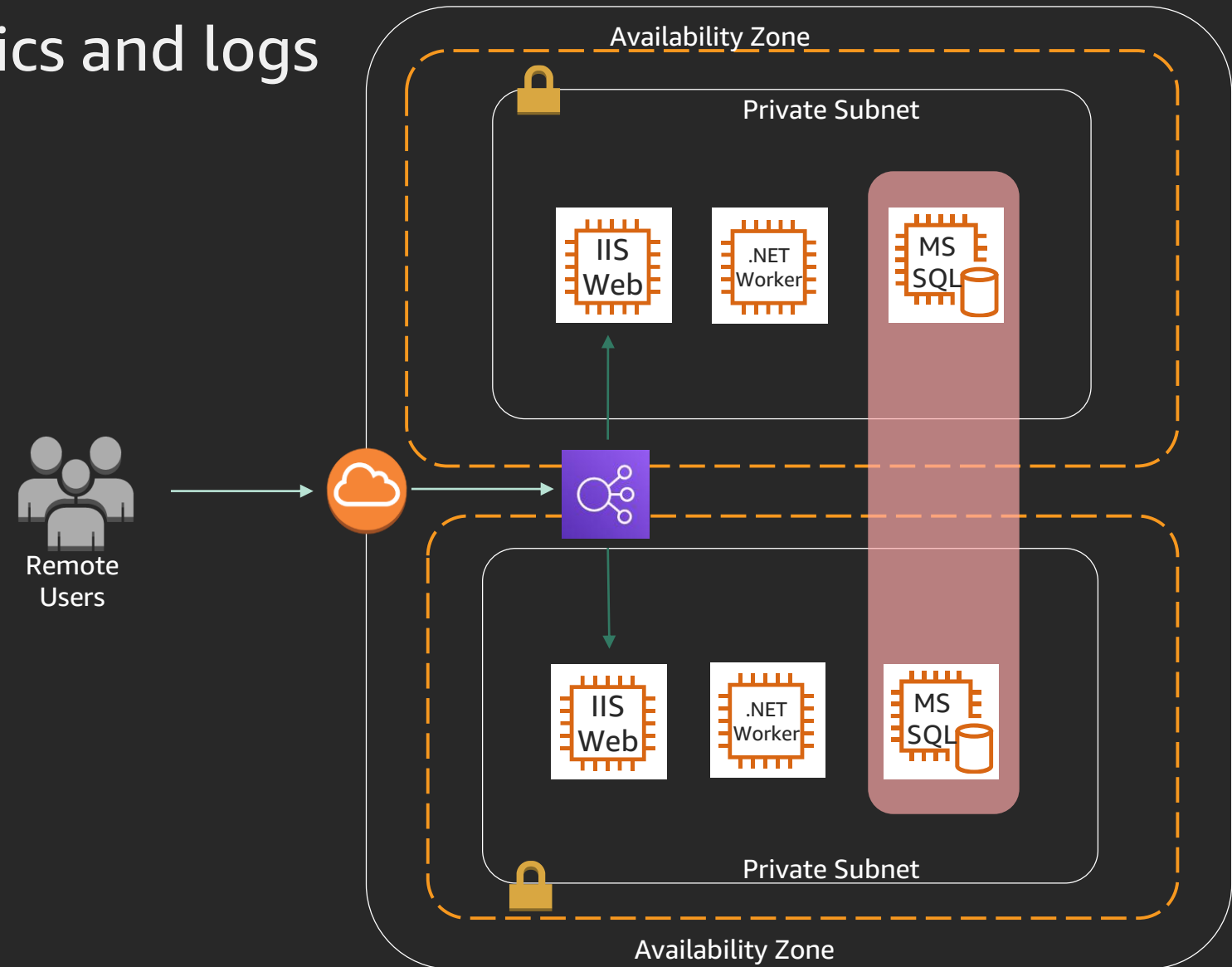


Take action

Visualize health using dashboards,
trigger actions/events

Application monitoring gaps

- Identify and set-up relevant metrics and logs



Application monitoring gaps

- Identify and set-up relevant metrics and logs

- Detect signs of a problem



Application monitoring gaps

- Identify and set-up relevant metrics and logs

IIS logs

- Detect signs of a problem

```
#Software: Microsoft HTTP API 2.0
#Version: 1.0
#Date: 2017-09-15 21:02:38
#Fields: date time c-ip c-port s-ip s-port cs-version cs-method cs-uri streamid sc-status s-
2017-09-15 21:04:36 :::1%0 50114 :::1%0 80 HTTP/1.1 GET /crash - 503 1 AppOffline .NET+v2.0
2017-09-15 21:04:38 :::1%0 50117 :::1%0 80 HTTP/1.1 GET /crash - 503 1 AppOffline .NET+v2.0
2017-09-15 21:15:23 :::1%0 50162 :::1%0 80 HTTP/1.1 GET /crash - 503 1 AppOffline .NET+v2.0
2017-09-15 21:15:25 :::1%0 50164 :::1%0 80 HTTP/1.1 GET /crash - 503 1 AppOffline .NET+v2.0
```

- Diagnose and troubleshoot

SQL Server error log

Name	Last Written	Size	view	watch	download
log/ERROR	January 14, 2015 at 5:17:35 AM UTC-8	6.1 kB	view	watch	
log/ERROR.1	January 13, 2015 at 3:59:00 PM UTC-8	53.3 kB	view	watch	
log/ERROR.2	January 12, 2015 at 3:59:00 PM UTC-8	5.9 kB	view	watch	download
log/ERROR.3	January 11, 2015 at 3:59:00 PM UTC-8	5.9 kB	view	watch	download
log/ERROR.4	January 10, 2015 at 3:59:00 PM UTC-8	5.9 kB	view	watch	download

Windows Event logs

Creation Time	Event Data
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: imklog 5.8.10, log source
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 rsyslogd: [origin software="rsysl
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] Initializing
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] Initializing
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] Initializing
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] Linux version
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] Command line:
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] e820: BIOS-pr
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] BIOS-e820: [m
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] BIOS-e820: [m
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] BIOS-e820: [m
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] BIOS-e820: [m
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] NX (Execute D
2014-09-16 17:15:51 UTC	▶ Sep 16 00:14:16 ip-10-144-226-204 kernel: [0.000000] SMBIOS 2.4 pr

Amazon CloudWatch Application Insights

Amazon CloudWatch Application Insights for .NET & SQL Server

Easily and quickly detect and diagnose common problems with .NET and SQL Server applications



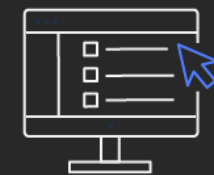
Visibility into monitoring data



ML-based anomaly detection



Visualize root-cause with automated dashboards



Remedial actions using Systems Manager

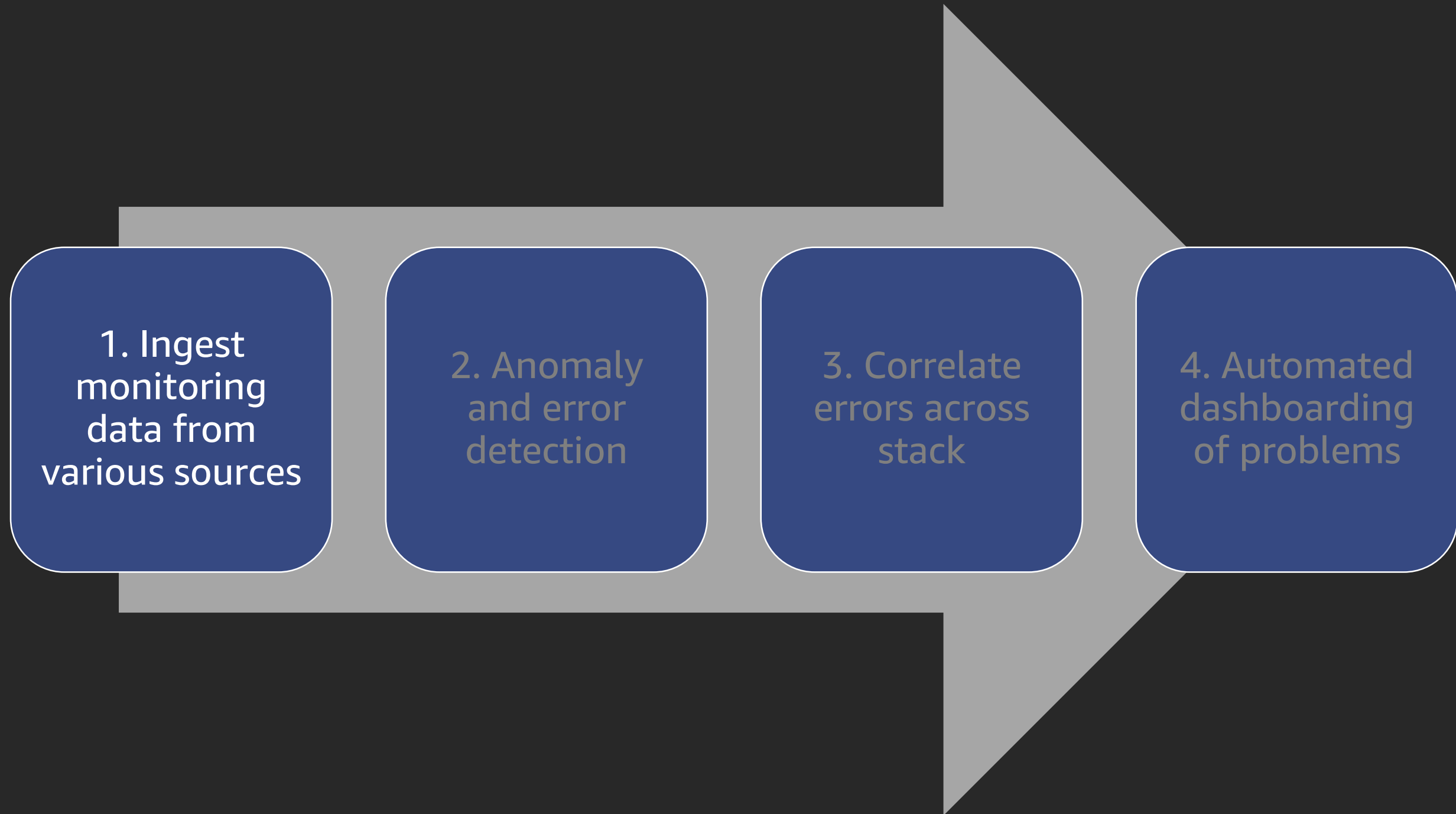
Benefits

- Easily set-up monitoring for .NET applications
- Out-of-the-box analysis
- Reduce mean-time-to-resolution (MTTR)

A common scenario...

How it works

How it works



Supported data sources

1. Platform metrics

- Built-in platform metrics
- Advanced custom
- Custom alarms

3. Windows Performance Counters

- .NET CLR, W3SVC_W3WP, Interop CLR
- SQL Server metrics
- IIS counters

5. Custom alarms

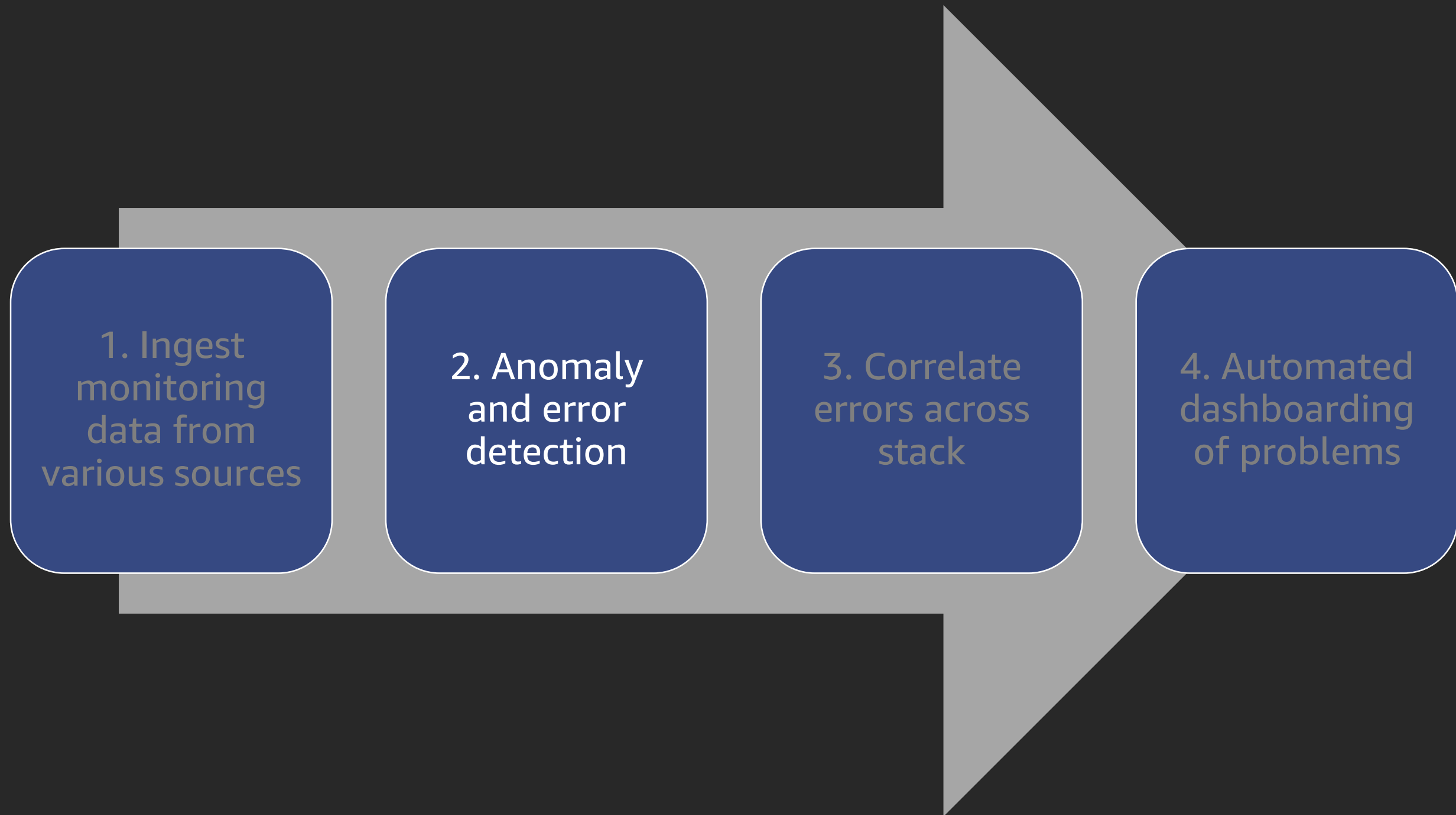
2. Application logs

- Microsoft IIS
- Microsoft SQL Server Error log
- Custom .NET application

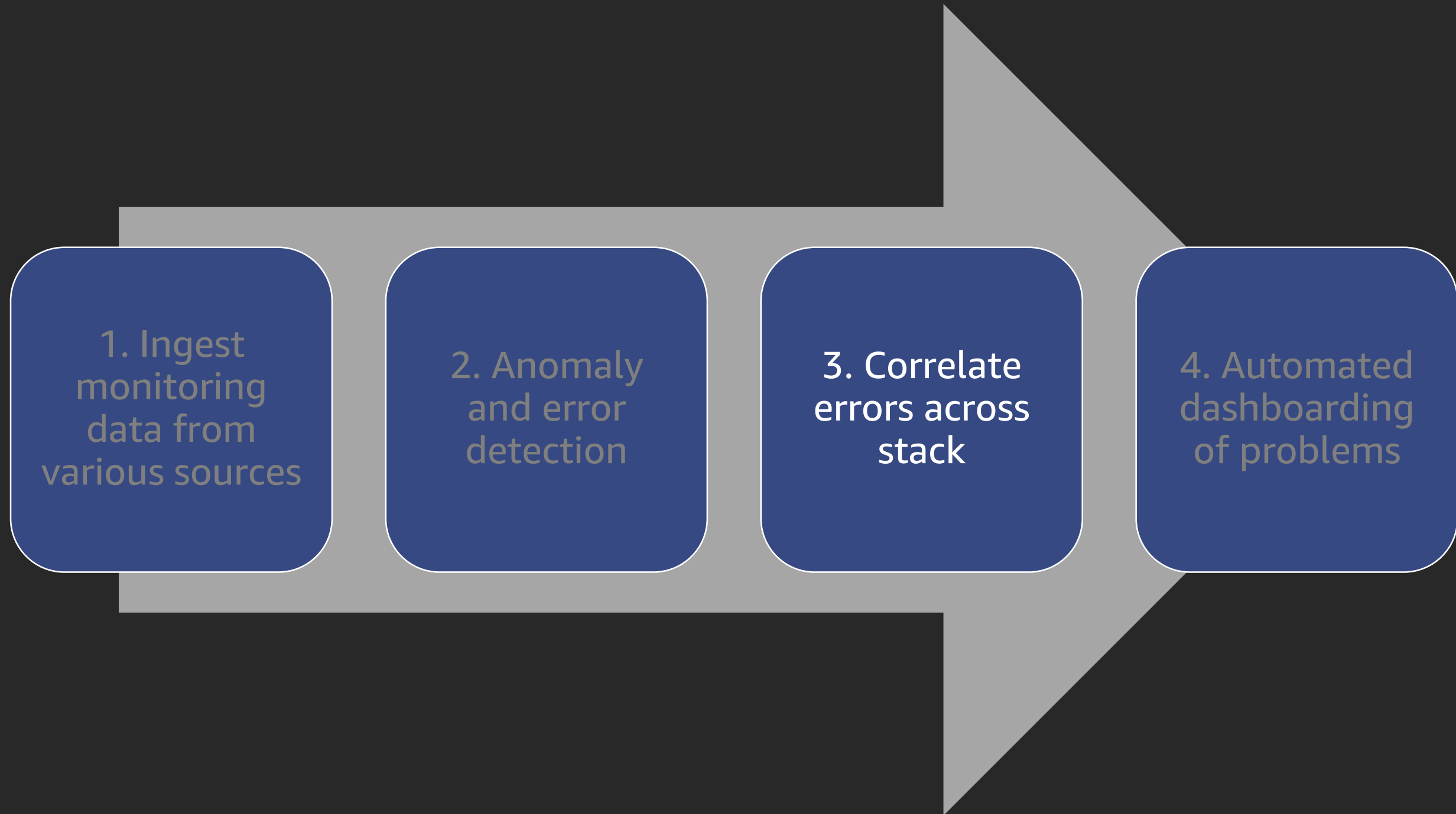
4. Windows Event logs

- System, Security and Application
- Windows and application logs

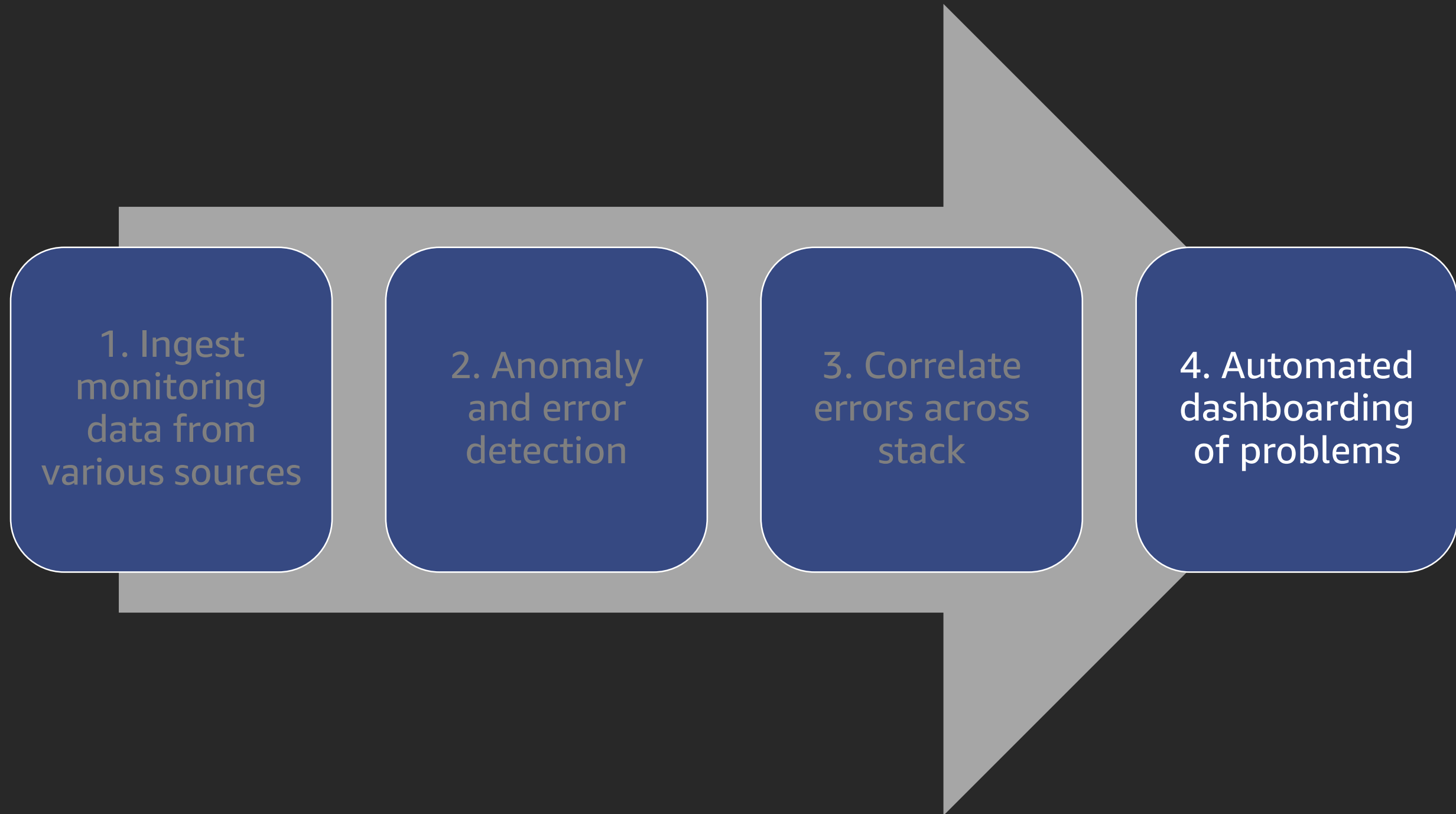
How it works



How it works



How it works



Problem-based automated dashboards

CloudWatch: Application Insights

Problem Id: p-2743c262-b50d-4364-bc76-474aa0f311f6 [Edit configuration](#)

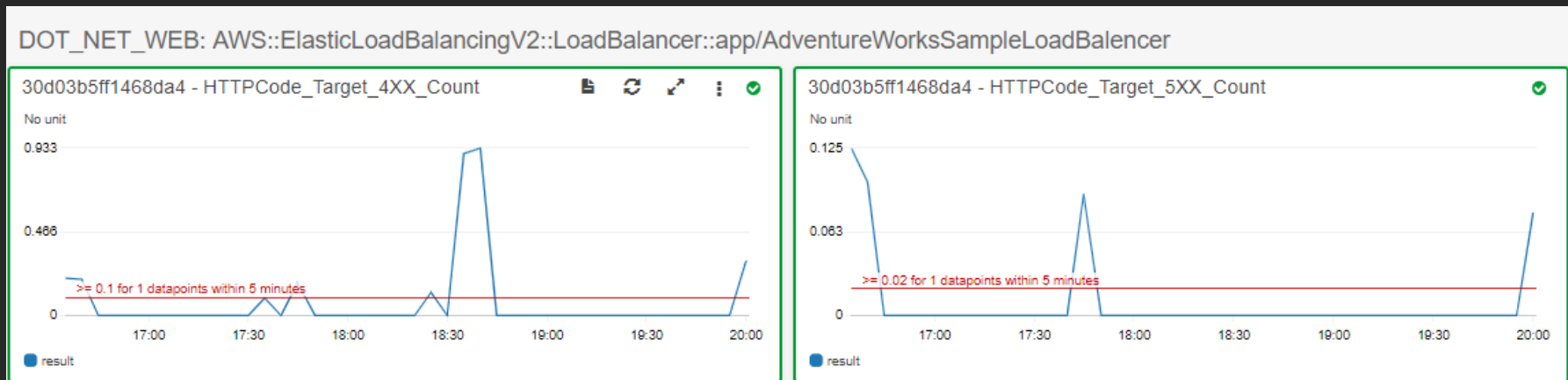
Problem summary

Severity	Problem summary	Source	Start / End time	Status	Resource group
High	SQL: Transaction Log Full	i-023bb397781704add	2019-06-20T16:16:51Z	In progress	testapp2

Insight ⓘ

SQL Server Engine issues a 9002 error when the transaction log is full. To make log space available, you may back up the log, free up disk space, move the log file to a disk drive with sufficient space, increase the size of the log file, or terminate a long-running transaction.

Help us improve our models: This insight is useful This insight is not useful [Submit feedback](#)



SQL_SERVER: AWS::EC2::Instance::i-023bb397781704add

Log Group: SQL_SERVER, Log Type: SQL_SERVER, TransactionLogFull

#	@timestamp	@message
1	2019-05-20T19:37:07.064Z	2019-05-20 19:37:06.82 spid19s Error: 9002, Severity: 17, Sta
2	2019-05-20T19:22:51.344Z	2019-05-20 19:22:51.31 spid61s Error: 9002, Severity: 17, Sta
3	2019-05-20T19:07:06.417Z	2019-05-20 19:07:06.34 spid40s Error: 9002, Severity: 17, Sta
4	2019-05-20T18:37:05.912Z	2019-05-20 18:37:05.80 spid31s Error: 9002, Severity: 17, Sta
5	2019-05-20T18:32:51.507Z	2019-05-20 18:32:51.27 spid59s Error: 9002, Severity: 17, Sta
6	2019-05-20T18:18:48.138Z	2019-05-20 18:18:48.06 spid53 Error: 9002, Severity: 17, Sta
7	2019-05-20T18:18:48.138Z	2019-05-20 18:18:48.06 spid53 Error: 9002, Severity: 17, Sta
8	2019-05-20T18:07:05.395Z	2019-05-20 18:07:05.32 spid36s Error: 9002, Severity: 17, Sta

Hands-on labs and demo

Common Problems

- **Microsoft SQL Server**
 - Failed backups, memory leak errors, database I/O operation errors, SQL time-out due to memory lock, too many parallel operations
- **Microsoft IIS**
 - HTTP request URI too large, read access forbidden, I/O operation aborted, Client request time-out, 4XX and 5XX errors

Summary

- CloudWatch Application Insights for .NET & SQL Server brings together CloudWatch capabilities
- Easy set-up and getting started experience
- Machine-learning based problem detection
- Faster troubleshooting through automated dashboards
- Reduced MTTR and improved user experience

Questions?

Learn more at

<https://docs.aws.amazon.com/AmazonCloudWatch/latest/monitoring/cloudwatch-application-insights.html>

Thank you!

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