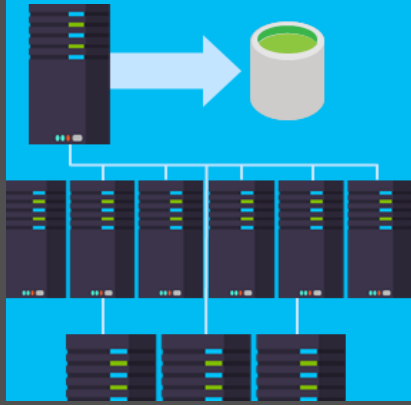


Azure Application Insights

Diagnostics for modern applications

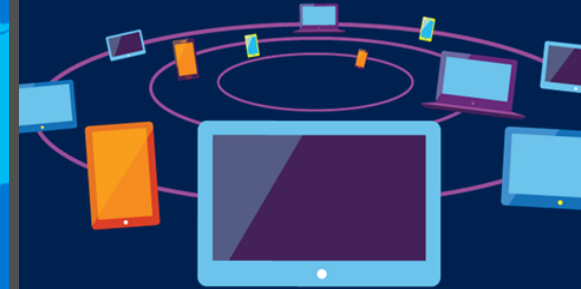
Multiple tiers and components



Multiple data centers



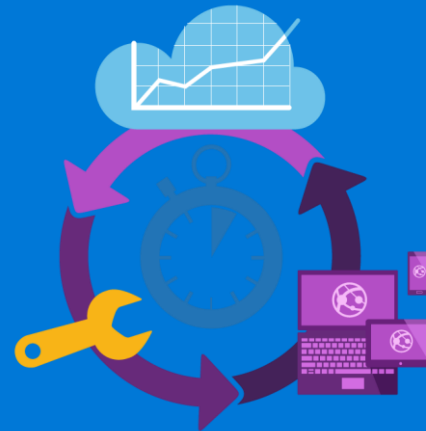
Different clients and browsers



Feature churn



Continuous Delivery



Quickly find and fix



Answer questions like ...



Is my application crashing?

What exactly happened?

Is my application fast enough?

Is my server able to handle the load?

How responsive are my dependencies?

Is my application UP or DOWN?

What is the root cause?

How many people are impacted?

What is Application Insights?

- Application Performance Management (APM) service
- Targeted (primarily) against Web applications

What is Application Insights?

3

Identify, understand and resolve issues with powerful out-of-the-box and custom telemetry

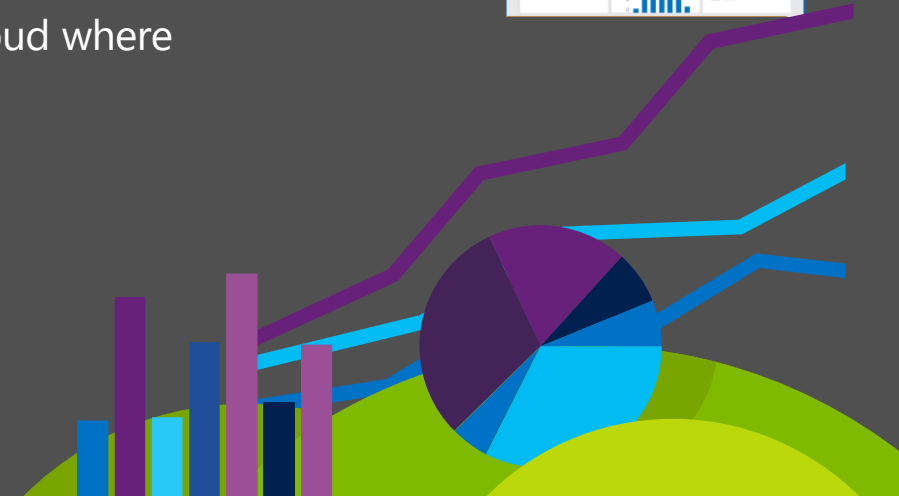
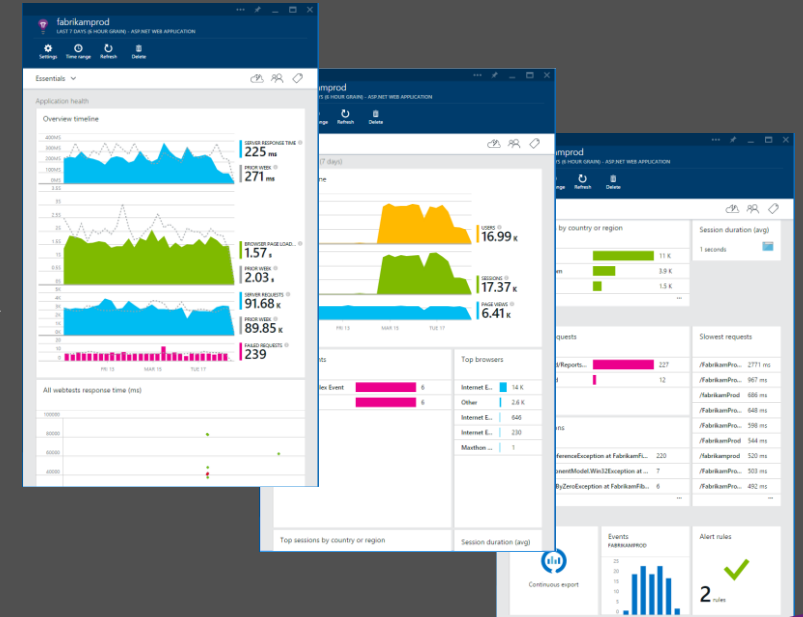
1

Telemetry is collected at each tier: server backend, middleware, web service & browser



2

Telemetry arrives in the cloud where it is stored & processed



Intelligent APM: Detect, Triage & Diagnose

Detect

Proactive alerts, dashboards and live-stream metrics

Triage

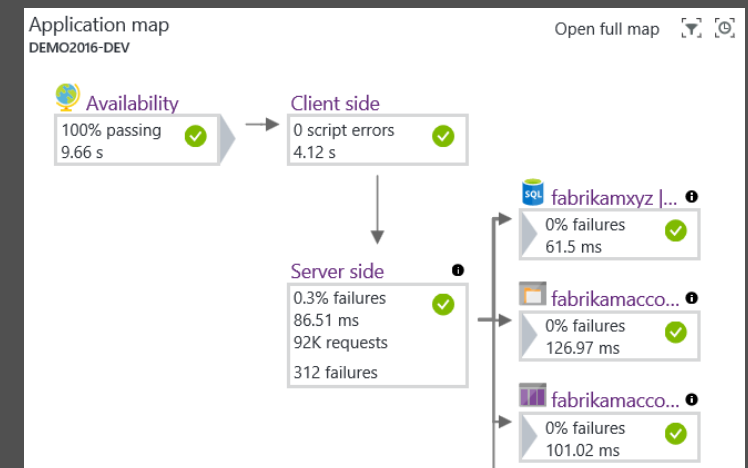
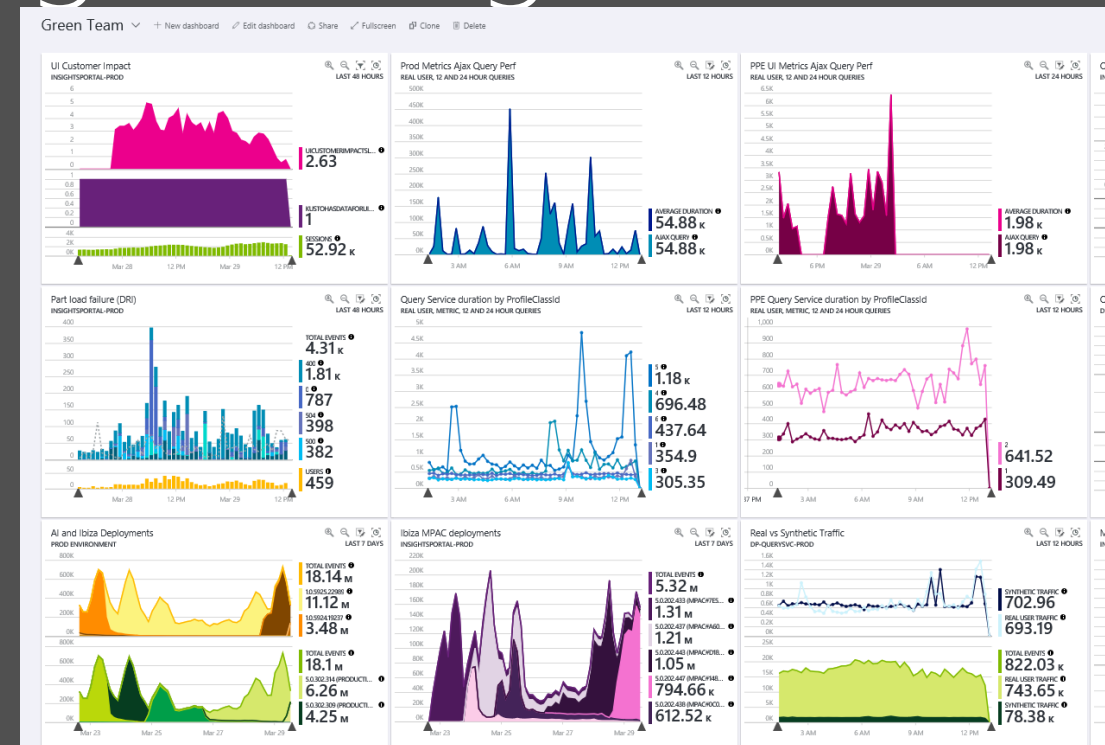
Application map and real user impact

Diagnose

Exceptions, performance issues, dependency failures and Azure role lifecycle issues

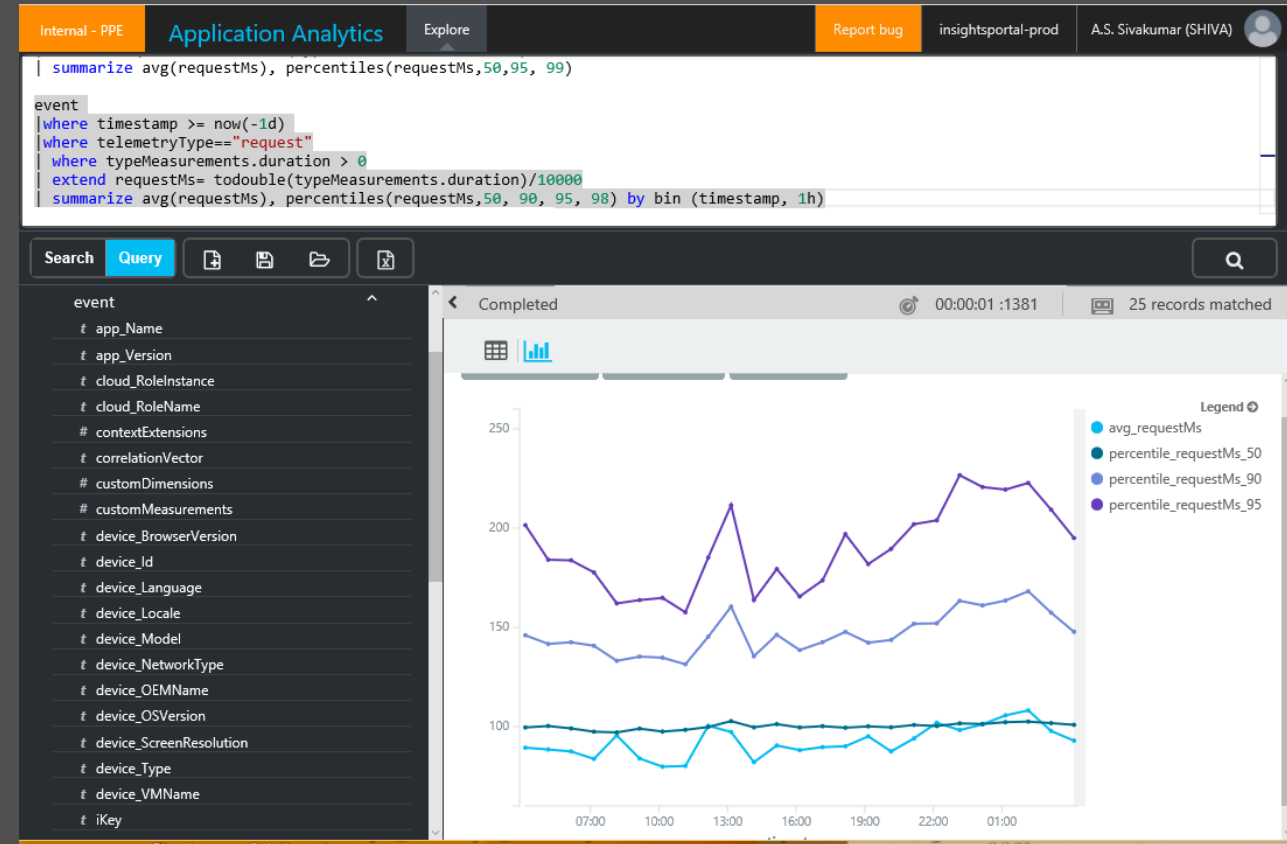
Operationalize

Alerts based on metrics/traces/events/APM data



Ad-hoc queries and interactive analytics

- Diagnosing across app stack is hard unless various perspectives connected
- New and powerful big data query engine for all your app telemetry and root-cause analysis
- Ad-hoc queries and full-text search helps answer tough questions instantly



DevOps integration

- Diagnose problems right from within your dev environment
- Integrate with existing DevOps workflows in Visual Studio & VSTS

Visual Studio 2015 (Update 2)

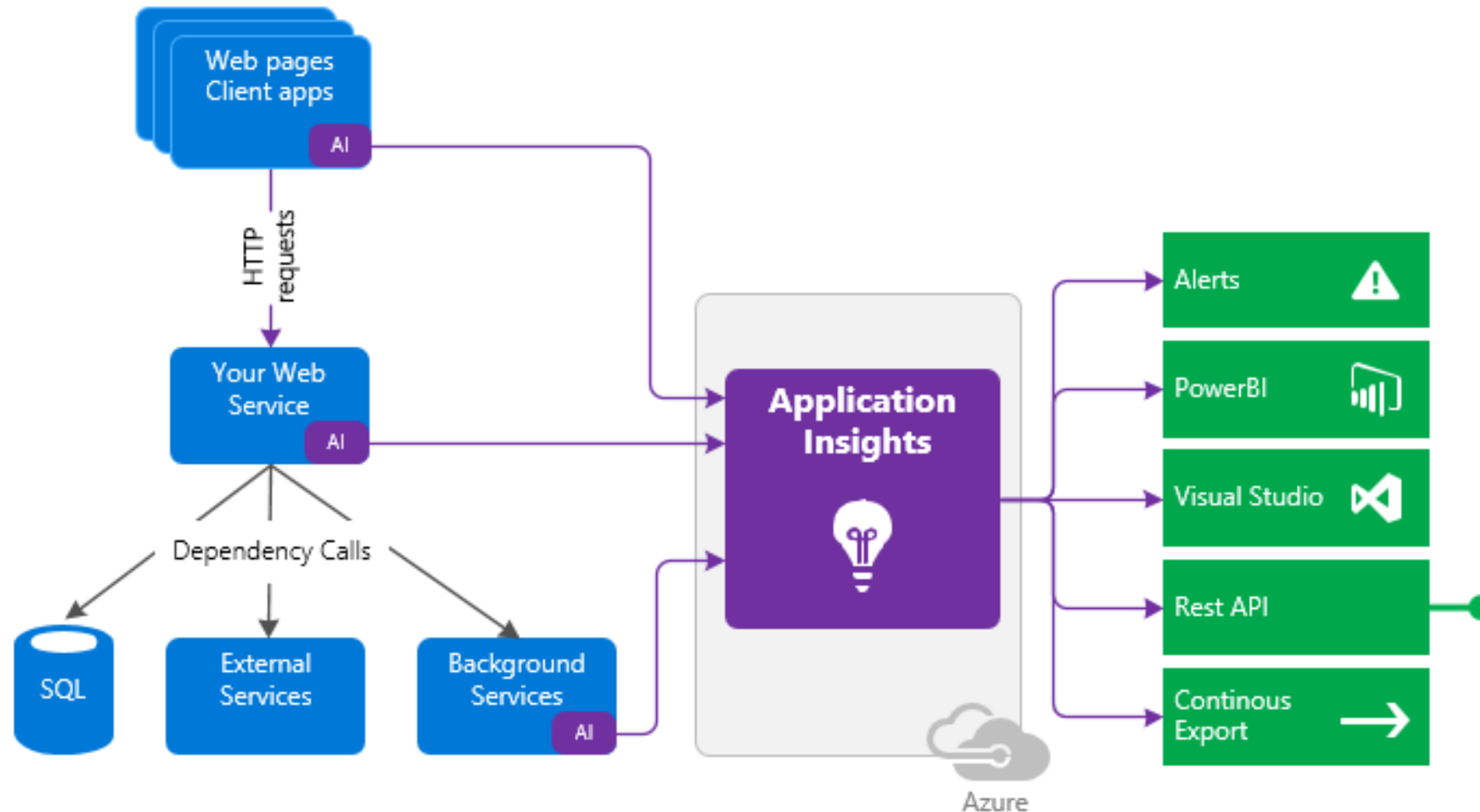
Seamless Trace Collection; Search Production Telemetry;
Diagnostics Hub; Jump to Code

Visual Studio Team Services

Release Annotations; Cloud Load Testing;
Work Item Tracking



How does Application Insights work?



How does Application Insights work?

- Telemetry data stored in Azure
- Application can run in Azure or On-premise

Telemetry monitored

- Request rates, response times, and failure rates
- Dependency rates, response times, and failure rates
- Exceptions
- Page views and load performance
- AJAX calls from web pages
- User and session counts.
- Performance counters from your Windows or Linux server machines, such as CPU, memory, and network usage.
- Host diagnostics from Docker or Azure.
- Diagnostic trace logs from your app
- Custom events and metrics that you write yourself in the client or server code

Application Insights supported Languages

C#|VB (.NET)

Java

JavaScript

Node.js

PHP

Python

App Insights supported Platforms/Frameworks

[Angular](#)

[ASP.NET](#)

[ASP.NET - for apps that are already live](#)

[ASP.NET 5](#)

[Android](#) (HockeyApp)

[Azure Web Apps](#)

[Azure Cloud Services](#)—including both web and worker roles

[CRM Online from Microsoft Dynamics](#)

[Docker](#)

[Glimpse](#)

[iOS](#) (HockeyApp)

[J2EE](#)

[J2EE - for apps that are already live](#)

[Mac OS X app](#) (HockeyApp)

[Node.JS](#)

[OSX](#)

[Spring](#)

[Universal Windows app](#) (HockeyApp)

[WCF](#)

[Windows Phone 8 and 8.1 app](#) (HockeyApp)

[Windows Presentation Foundation app](#) (HockeyApp)

[Windows desktop applications, services, and worker roles](#)

[Anything else](#)

App Insights supported Logging modules

- [Log4Net, NLog, or System.Diagnostics.Trace](#)
- [Java, Log4J, or Logback](#)
- [Semantic Logging \(SLAB\)](#)
- [Cloud-based load testing](#)
- [LogStash plugin](#)
- [OMS Log Analytics](#)

App Insights supported CMS

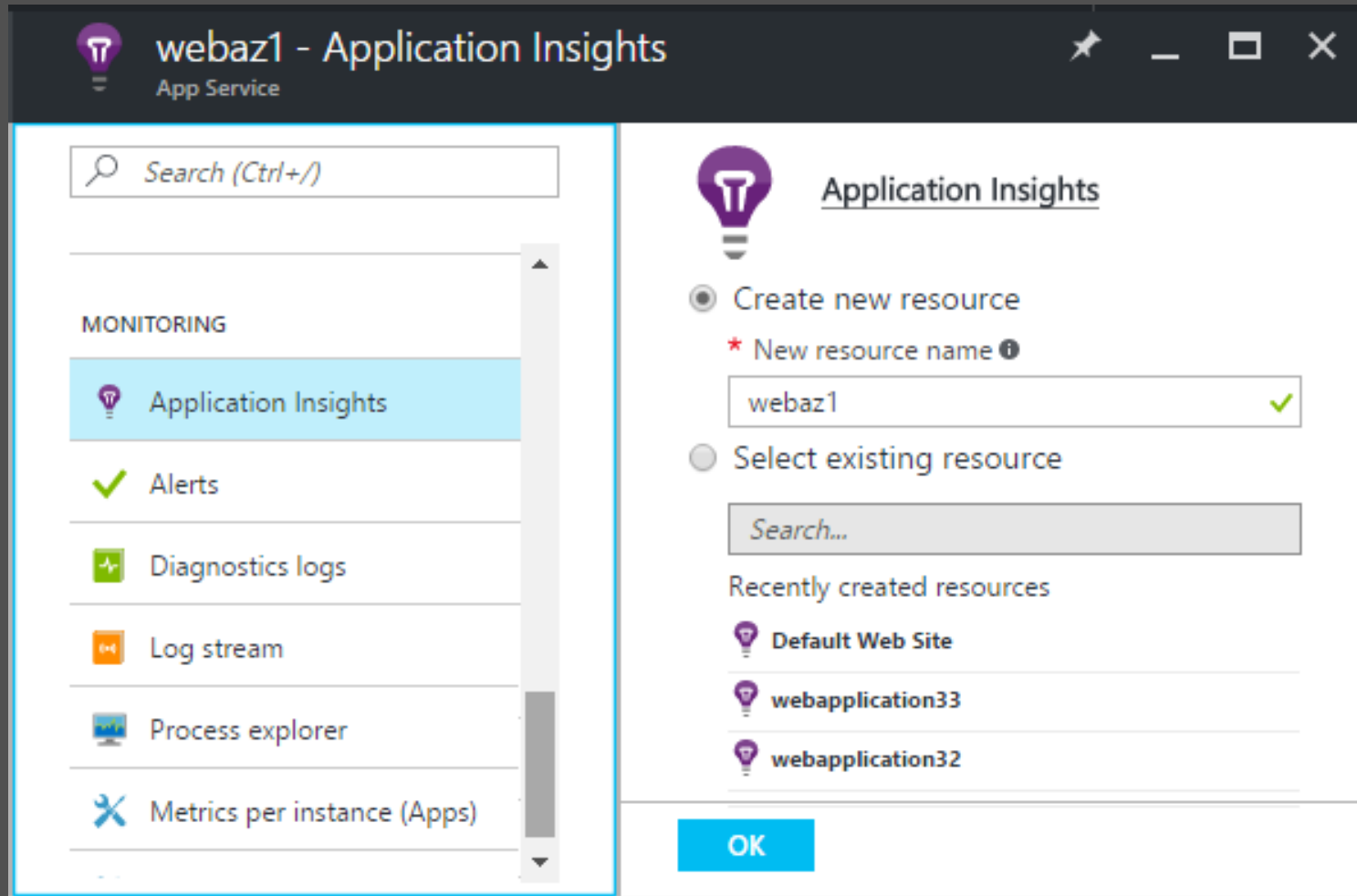
- [Concrete](#)
- [Drupal](#)
- [Joomla](#)
- [Orchard](#)
- [SharePoint](#)
- [WordPress](#)

Run time or build time?

- You can configure monitoring by instrumenting the app in either of two ways:
 - **Run-time** - You can select a performance monitoring extension when your web app is already live. It isn't necessary to rebuild or re-install your app. You get a standard set of packages that monitor response times, success rates, exceptions, dependencies, and so on.
 - Azure, CMS (Sharepoint) etc...
 - **Build time** - You can install a package in your app in development.

Run time instrumentation

- Azure already contains required software



Run time instrumentation

- On premise requires additional install

The screenshot displays the 'Application Insights Status Monitor' window. On the left, under 'IIS applications', there is a table with three rows. The first two rows are 'Not enabled' and the third is 'Enabled'. The right pane shows the 'Default Web Site Configuration' for the user 'ctsodev1@fabrikam.com'. It indicates that telemetry is being sent to a new Application Insights resource named 'groceries' in the 'Fabrikam' resource group. A blue button labeled 'Add Application Insights' is visible at the bottom right of the configuration section.

Status	Local IIS application	Application Insights resource
Not enabled	Default Web Site	
Not enabled	Default Web Site/groceries	
Enabled	Default Web Site/icecream	Fabrikam/icecreamsite

Default Web Site Configuration

ctsodev1@fabrikam.com [Use a different account](#)

Send telemetry to:

New Application Insights resource

Data will be sent to a new Application Insights resource "groceries" in the resource group "Fabrikam" in subscription "Pay-As-You-Go". To modify choose [Configure settings](#).

[Add Application Insights](#)

Configuration notifications

No notifications at this time.

Demo: Overview of Application Insights

Adding instrumentation at build time

ASP.NET Web Site in VS

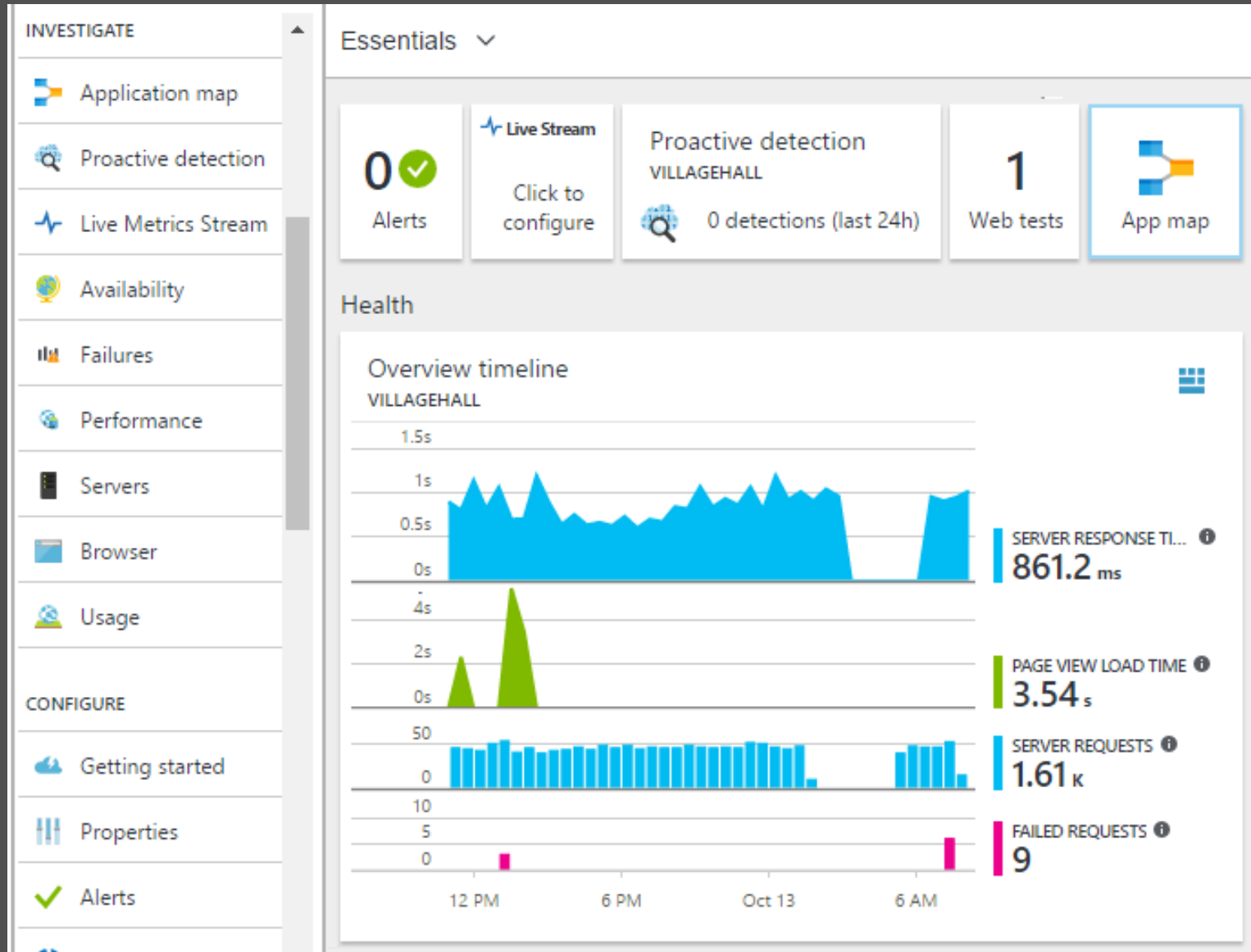
Add AI support in VS

Run locally

Browse telemetry

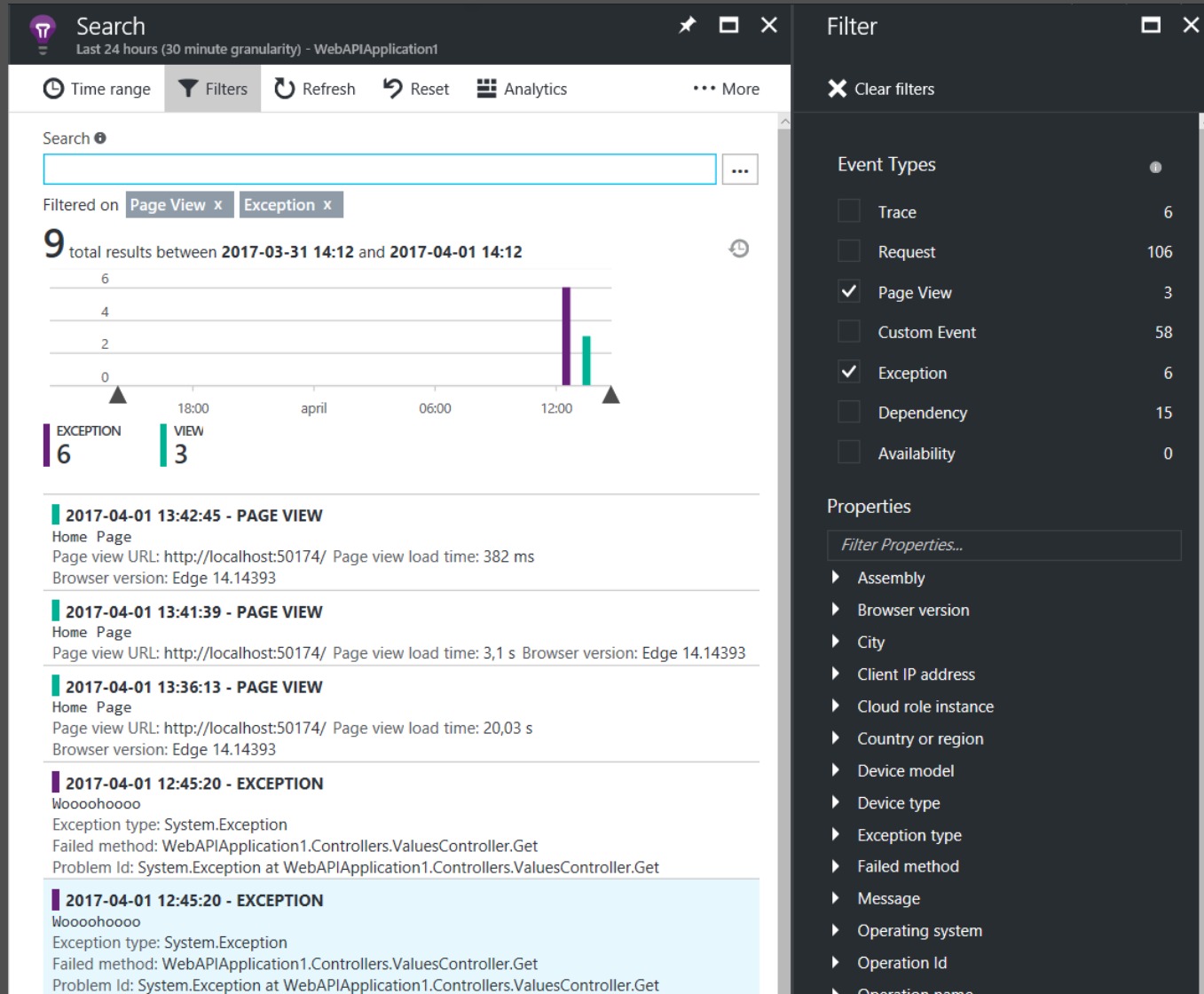


Portal – Overview



- Search
- Metrics Explorer
- Analytics
- Time Range
- Alerts
- Live Stream
- Availability
- App Map
- All drill down...

Portal – Search



Portal – Analytics

Application Insights

WebAPIApplication1 > Analytics

😊 ? ⚙️ Mats Johansson

🏠 📁 💾 Export ⌵ ⌚ Set in query ⌵ ▶ GO

SCHEMA FILTER

Filter by Name or Type... 🔍

COLLAPSE ALL | EXPAND ALL

APPLICATION INSIGHTS ⬆

traces ⌵

customEvents ⌵

pageViews ⌵

requests ⌵

dependencies ⌵

exceptions ⌵

availabilityResults ⌵

customMetrics ⌵

performanceCounters ⌵

browserTimings ⌵

OTHER DATA SOURCES ⬆

➕ Add new data source

Home Page x New Query 1* x +

exceptions
| where timestamp > ago(24h)

Completed 00:00:00.770 6 records loaded

TABLE CHART Columns ✎

Drag a column header and drop it here to group by that column

timestamp	problemId	type	assembly
2017-04-01T10:45:20.611Z	System.Exception at WebAPIApplication1.Controllers.V...	System.Exception	WebAPIApplication1, Version=1.0.0.0, Culture=neutral...
2017-04-01T10:45:20.611Z	System.Exception at WebAPIApplication1.Controllers.V...	System.Exception	WebAPIApplication1, Version=1.0.0.0, Culture=neutral...
2017-04-01T10:45:20.62Z	System.Exception at WebAPIApplication1.Controllers.V...	System.Exception	WebAPIApplication1, Version=1.0.0.0, Culture=neutral...
2017-04-01T10:45:20.621Z	System.Exception at WebAPIApplication1.Controllers.V...	System.Exception	WebAPIApplication1, Version=1.0.0.0, Culture=neutral...
2017-04-01T10:45:20.696Z	System.Exception at WebAPIApplication1.Controllers.V...	System.Exception	WebAPIApplication1, Version=1.0.0.0, Culture=neutral...
2017-04-01T10:45:20.696Z	System.Exception at WebAPIApplication1.Controllers.V...	System.Exception	WebAPIApplication1, Version=1.0.0.0, Culture=neutral...

Page 1 of 1 50 items per page 1 - 6 of 6 items

Portal – Alerts


Add an alert rule

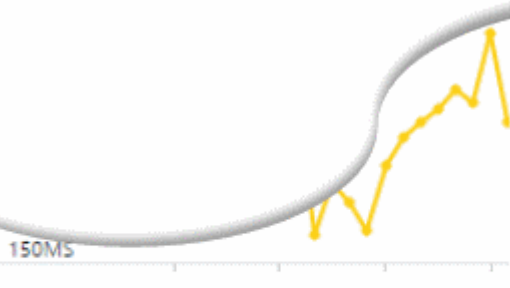
Resource ⓘ
FabrikamBank ▼

Name ⓘ
SlowResponse ✓

Description
Description

Metric ⓘ
Server response time ▼





150MS

THU 20 06 AM 12 PM 06 PM

Condition
greater than ▼

Threshold ⓘ
0.35 ✓

seconds

Period ⓘ
Over the last 5 minutes ▼


email service and co-administrators
☐

additional administrator email
ctsodev1@fabrikam.com ✓


OK

Portal – Smart Detection

- Magic...

 Microsoft

Azure Application Insights

 Abnormal rise in failed request rate in app "fabrikamprod"

When did this happen: December 12, 2016 11:36 - 11:56 (UTC)

What went wrong: **49.5%** failed request rate (54/109)

Normal rate over 7 days: **17.7%**

77.8% of all the failed requests affected **2 users** and had [these characteristics](#):

Response code: 500 - Internal server error

Request name: POST Customers/Create

Server URL host: aiconnect2.cloudapp.net

Application version: AutoGen_29be773e-4ebe-4b96

Role instance: AiConnect2

Country: United Kingdom

77.8% of all the failed requests had [this exception](#):

Exception method: FabrikamFiber.DAL.Data.CustomerRepository.Save

Exception type: System.Data.SqlClient.SqlException

Sample message: The INSERT statement conflicted with the CHECK constraint "chk_read_only". The conflict occurred in databas...


77.8% of all the failed requests had failures in [this dependency](#):


SQL: tcp:fabrikamxyz.database.windows.net,1433 | FabrikamISQL

The failed requests characterized above had [traces](#):

- New Request Received
- Starting to save New Customer

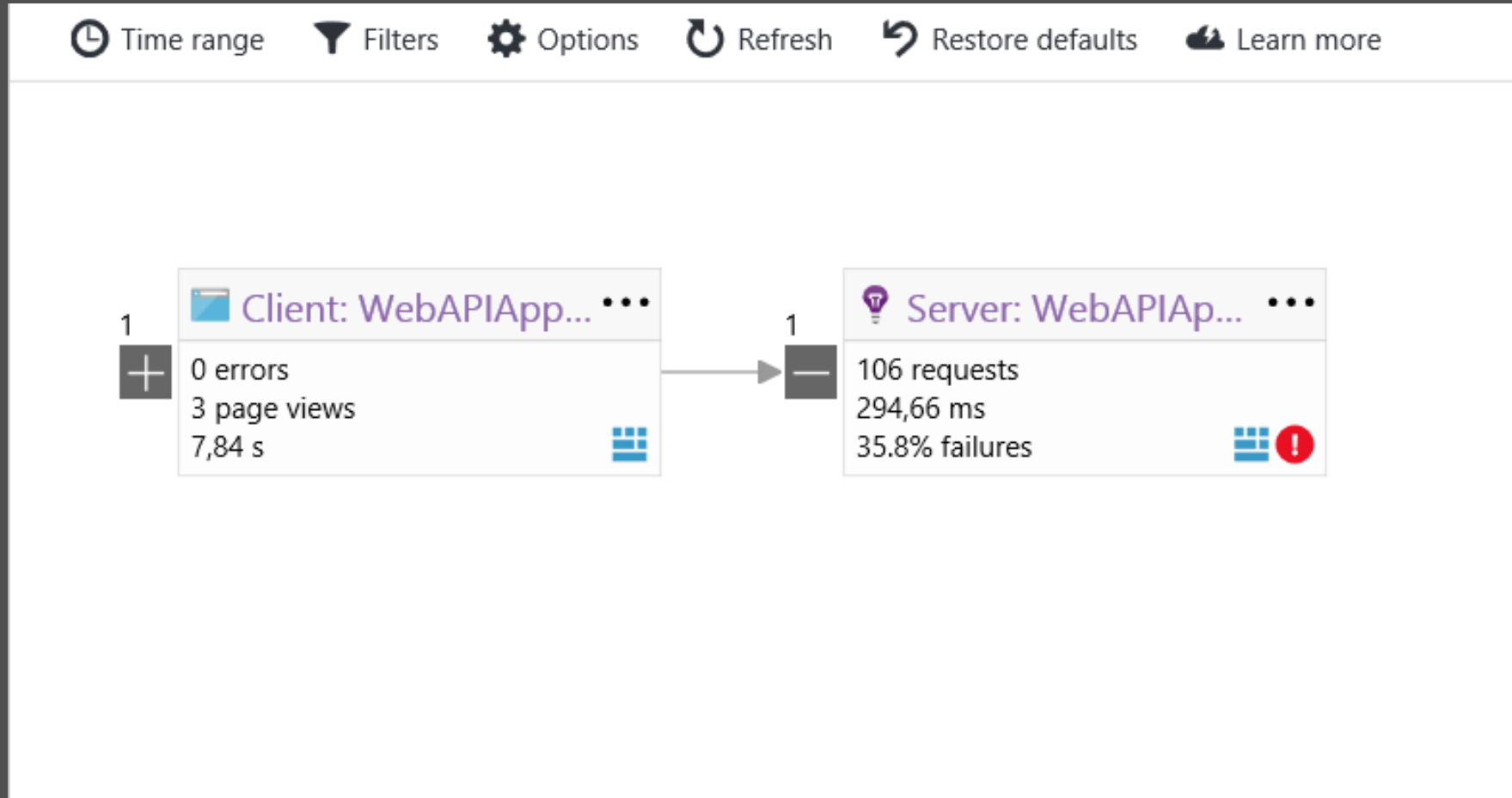
To continue diagnosis:

 Go to [Analytics](#) for powerful queries over your telemetry

 Go to [Application Insights portal](#) for metric charts and telemetry search

Was this notification helpful? [Yes](#), [No](#)

Portal – Application Map



Portal – Application Map

- Availability tests
- Client-side component (monitored with the JavaScript SDK)
- Server-side component
- Dependencies of the client and server components

(Finds server nodes by looking for all Application Insights resources within the current resource group) ?

Application Insights in Visual Studio

