

Implement Alerts and Handle Transient Faults



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Module Overview



Set up recurring tests to monitor availability and responsiveness of your web apps

Receive alerts when your app is not available

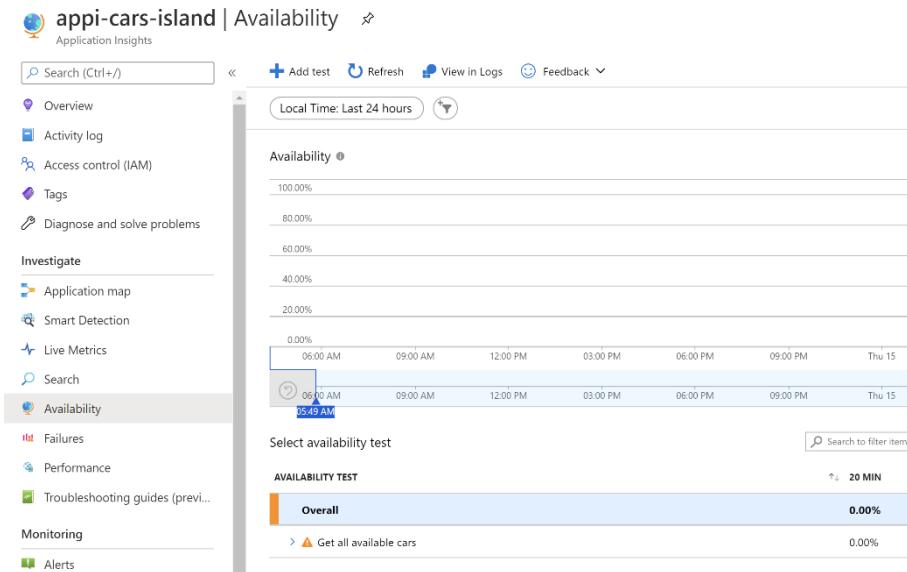
React on the transient failures in the code to make your solution more resilient



Monitor Availability with Azure Application Insights Web Test and Alerts



Azure Application Insights Web Tests



With Azure Application Insights you can set up recurring tests to monitor availability and responsiveness of your web apps and web services



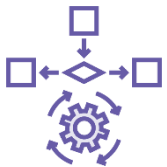
Types of Availability Tests:



URL ping test - a single URL test that you can create in the Azure portal



Custom Track Availability Tests - send information about availability of an application using `TrackAvailability()` method from the SDK



Multi-step web test - A recording of a sequence of web requests, which can be played back to test more complex scenarios



Azure Application Insights Web Tests

get all available cars-appi-cars-island



Rules management

 Save  Discard  Disable  Delete

Edit the details below to modify the alert rule.
When defining the alert rule, check that your inputs do not contain any sensitive content.

Scope

Select the target resource you wish to monitor.

Resource	Hierarchy
 get all available cars-appi-cars-island	 Visual Studio Enterprise >  rg-cars-island

[\[Go to webtest for more details\]](#)


Condition

Configure when the alert rule should trigger by selecting a signal and defining its logic.

Condition name

 Whenever the average failed locations is greater than or equal to 3 count

Select condition

 You can only define one availability test signal per alert rule. To alert on more signals, please create additional alert rules.

Action group







Send notifications or invoke actions when the alert rule triggers, by selecting or creating a new action group. [Learn more](#)

Action group name	Contains actions
Availability tests owner	1 Email 

[Select action group](#)

Alert rule details

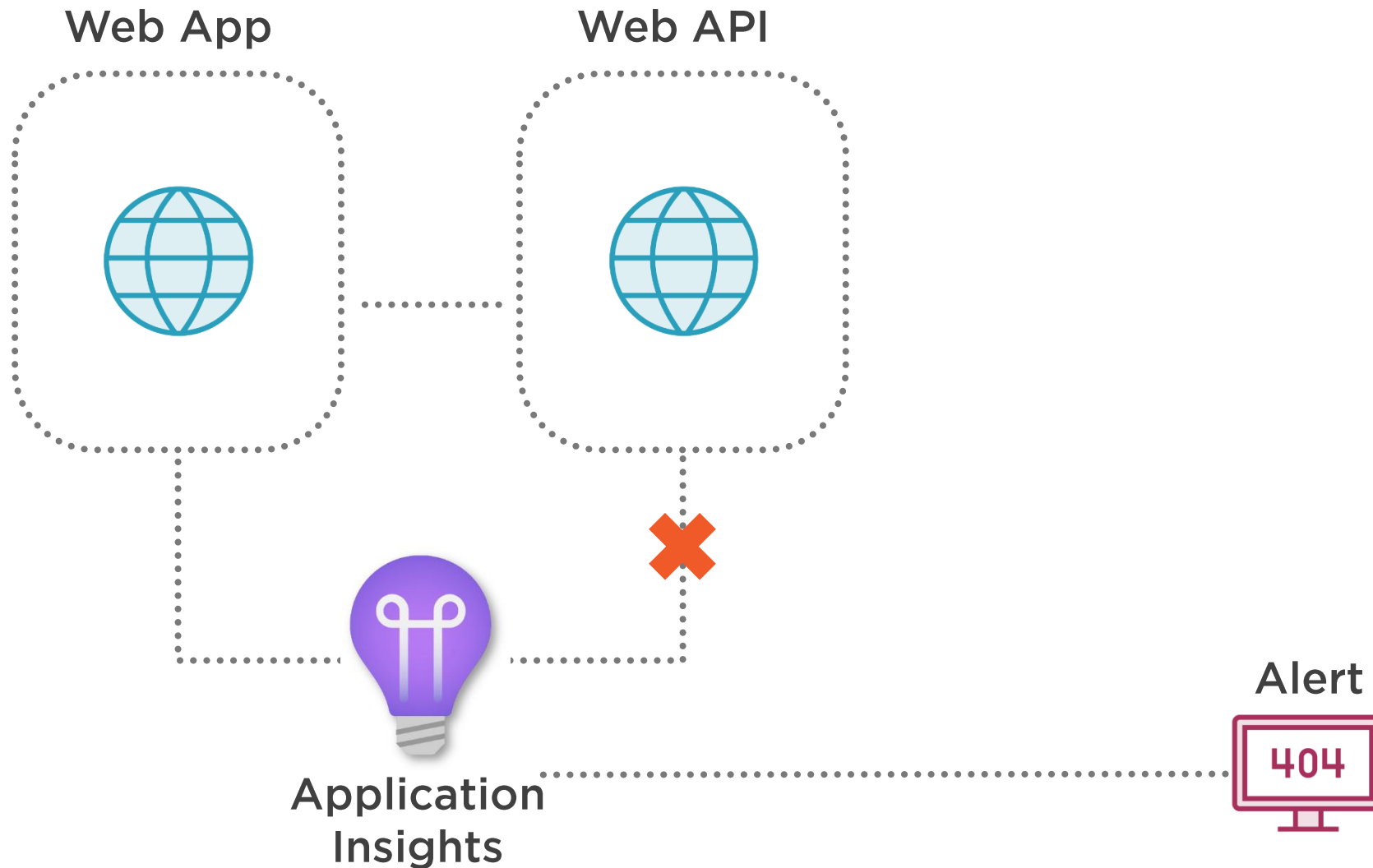
Provide details on your alert rule so that you can identify and manage it later.

Alert rule name 	<input type="text" value="get all available cars-appi-cars-island"/>
Description	<div>Automatically created alert rule for availability test "get all available cars-appi-cars-island" </div>
Save alert rule to resource group 	<input type="text" value="rg-cars-island"/> 
Severity * 	<input type="text" value="Sev 1"/> 

Azure Application Insights can alert you if your application isn't responding, or if it responds too slowly during the availability tests



Azure Application Insights Alerts



An Action Group

Collection of notification preferences defined by the owner of an Azure subscription.

Azure Monitor and Service Health alerts use action groups to notify users that an alert has been triggered.



Azure Application Insights Action Groups

Edit action group

 Save changes  Delete action group

This is a summary of your action group. Please review to ensure the information is correct and consider [Azure Alerts Pricing](#) and the [Azure Privacy Statement](#).

Basics

Subscription	Visual Studio Enterprise
Resource group	rg-cars-island
Action group name	Availability tests owner
Display name *	Availability

Notifications

Notification type	Name	Status	Selected
Email/SMS message/Push/Voice	Send email	Subscribed	Email 
<input type="text"/>	<input type="text"/>		

Actions

Action type	Name	Selected
<input type="text"/>	<input type="text"/>	

Each action is made up of the following properties:

- Type: notification or action performed
- Name: unique identifier of the group
- Action: additional action like Webhook



Azure Application Insights Alert



An Azure Monitor alert is activated for get all available cars-appi-cars-island

The availability test **get all available cars-appi-cars-island** has failed at 3 locations within the last 5 minutes.

[View application availability >](#)

Time of alert	October 19, 2020 4:53 UTC
Availability test	get all available cars-appi-cars-island
Subscription	15-4435-bd89-
Condition	1 or more failed locations
Failed locations	3
Period	5 minutes

Once there is a failure, new alert is sent to the target group



Demo



Configure Application Insights Availability Tests and Alerts

- Setup availability test
- Create action group
- Receive and investigate alert



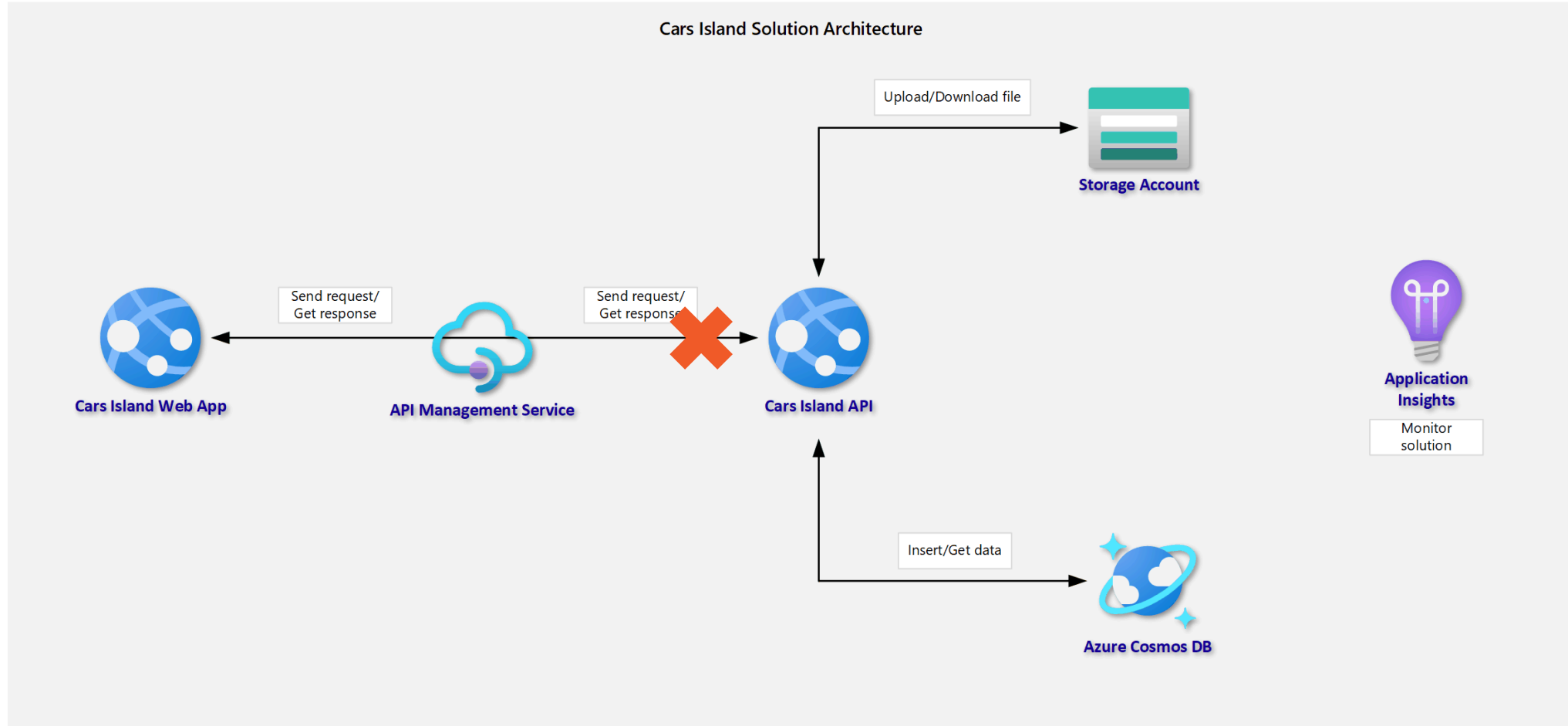
Implement Code That Handles Transient Faults



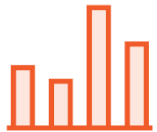
Transient faults include the momentary loss of network connectivity to components and services, the temporary unavailability of a service, or timeouts that arise when a service is busy



Transient Faults



Transient Faults Challenges



The application must be able to detect faults when they occur, and determine if these faults are likely to be transient



The application must be able to retry the operation if it determines that the fault is likely to be transient



The application must use an appropriate strategy for the retries. This strategy specifies the number of times it should retry



Resiliency in the Source Code



Polly open-source library

- Retry
- Timeout
- Circuit breaker

The Retry Policy



Send the request to the specific service again, after some time



Wait before sending the next request



Configure retry times and time interval between requests



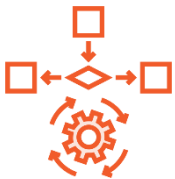
The Circuit Breaker Policy



Service is unavailable and cannot respond to a request



Avoid sending request for some time



When the circuit is opened, no request is sent until it is closed again



Demo



Implement code that handles transient failures

- Implement handling transient failures in the ASP .NET Core web app using Polly library
- Retry policy
- Circuit breaker policy



Summary



Setup availability tests with Azure Application Insights

Configure action groups to receive alerts

Implement code that handle transient faults with Polly library



Thank you!



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