XMAS DEV 2024

Babbo Natale teme il Chaos

e vuole Monitorare le sue Applicazioni

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NET CODE

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OBSERVABILITY

Observability

is about

understanding and debugging unknown-unknowns.

Charity Majors – Co-Founder Honeycomb.io

KNOWLEDGE VS UNKNOWLEDGE

Knowledge What in the code is “correct”

Unknowledge What in the code is “incorrect”

**From a knowledge perspective unknowledge is still knowledge;
it just doesn’t apply to this particular system.**

OPENTELEMETRY

01 Protocol

02 Vendor and Tool Agnostic

03 Focused on Generation, Collection, Management and Export of Telemetry

04 SDKs for many different languages/frameworks

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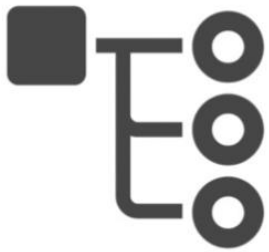
WHAT DO WE RECORD?

Metrics

Metrics are data measured or acquired from the individual components of a network.
Latency and traffic in a network, error and discard rates, and saturation data acquired from network devices all contribute to metrics.



Traces

Traces give you the step-by-step approach an application takes in executing a specific functionality. They help you identify the lowest performing functions or components in an application, help in troubleshooting, and provide critical visibility into the behavior and overall health of an application.

Logs

Logs record events that occur in a system. Be it system logs or application logs, recording and analyzing the acquired logs will help you determine the events and actions occurring in the system.

PROMETHEUS

01 CNCF graduated – 100% open-source

02 Used for event monitoring

03 Records metrics in a time series database

04 http pull model

GRAFANA

01 Open-source

02 Visualiza data through diagrams and charts

03 Provides one or more dashboardss

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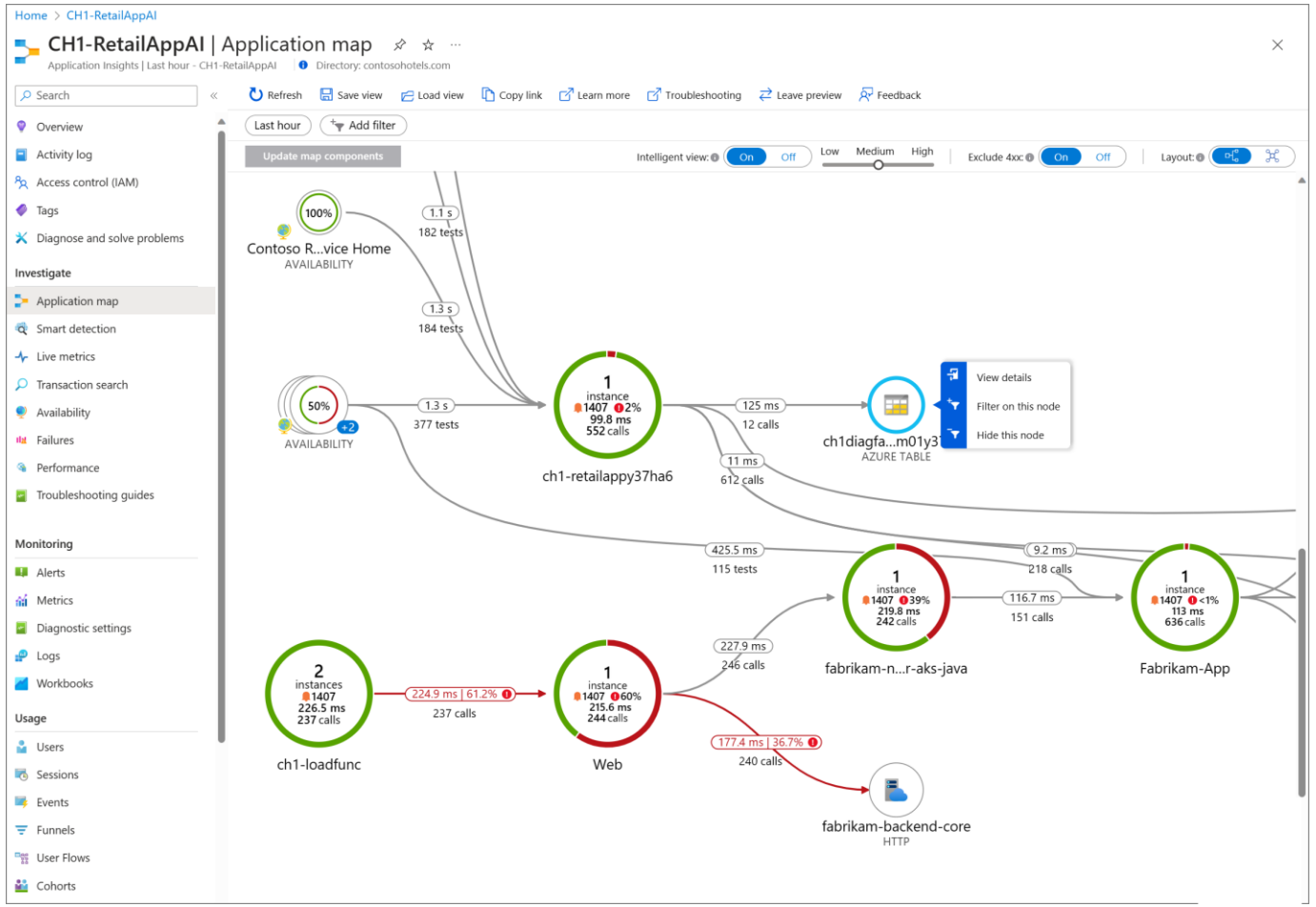
AZURE MONITOR APPLICATION INSIGHTS



https://learn.microsoft.com/en-us/azure/azure-monitor/app/app-insights-overview

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.NET ASPIRE DASHBOARD

01 Offers a great way to get real-time insights into logs, traces, and the configuration of your applications.

02 You can run this locally.

03 You can also deploy it to your Azure Container App environment

.NET ASPIRE DASHBOARD ON AZURE

Resource group (move)	: brewup-resourcegroup
Status	: Running
Location (move)	: Italy North
Subscription (move)	: Visual Studio Enterprise Subscription
Subscription ID	: dd2af1b0-bbbb-4b9f-8f51-cdcf13636585

Application Url	: https://brewupapi.ambitiousocean-9c685401.italynorth.azurecontainerapps.io
Container Apps Environment	: brewup-environment
Environment type	: Workload profiles
Log Analytics	: workspace-brewupresourcegroupTRcM
Development stack	: Generic (manage)
.NET Aspire Dashboard	: enable

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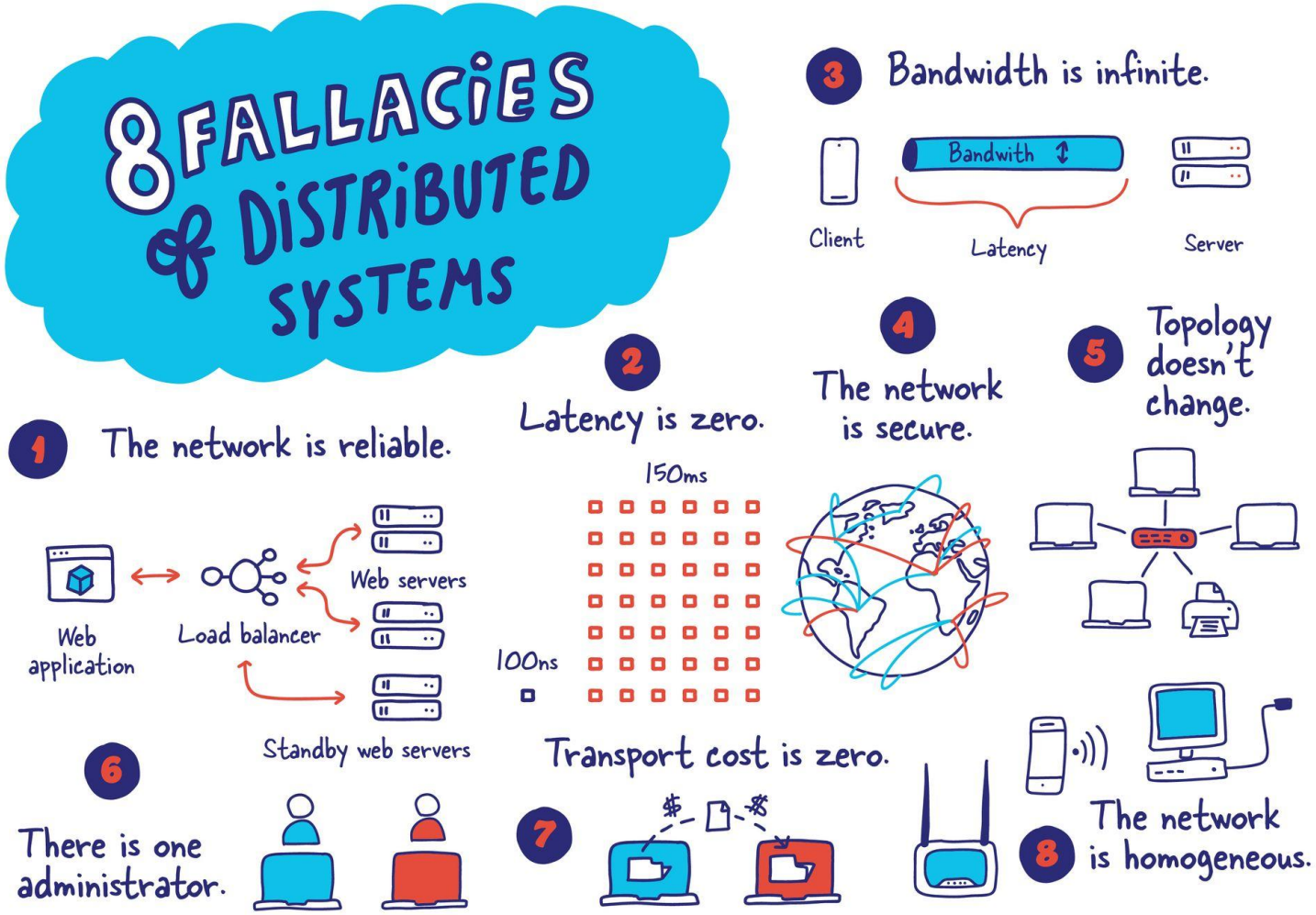
FALLACIES



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CHAOS ENGINEERING

Chaos Engineering is the **discipline of experimenting** on a system in order to **build confidence** in the system's capability to withstand turbulent conditions in productions.

Principles of Chaos

POLLY

01 Retry policies with exponential backoff.

02 Circuit Breaker

03 Bulkhead isolation to limit resource exhaustion.

04 Timeout policies for managing slow operation

RESILIENCY

Resiliency is the ability of an app to recover from transient failures and continue to function. In the context of .NET programming, resilience is achieved by designing apps that can handle failures gracefully and recover quickly.

NuGet package	Description
Microsoft.Extensions.Resilience	This NuGet package provides mechanisms to harden apps against transient failures.
Microsoft.Extensions.Http.Resilience	This NuGet package provides resilience mechanisms specifically for the HttpClient class.
Microsoft.Extensions.Http.Polly	**Deprecated!**

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CHAOS AND TELEMETRY

Starting with version 8, Polly provides telemetry for all built-in standard and chaos resilience strategies.
The metrics are emitted under the **Polly** meter name.

Name	Description
event.name	The name of the emitted event.
event.severity	The severity of the event.
pipeline.name	The name of the pipeline corresponding to the resilence pipeline
pipeline.instance	The instance name of the strategy generating this event.
strategy.name	The name of the strategy generating this event.
operation.key	The operation key associated with the call site.
exception.type	The full name of the exception assigned to the execution result

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DDD OPEN SPACE

Verona, il 4 - 5 febbraio 2024

L'evento italiano dedicato a Domain-Driven Design

https://www.eventbrite.it/e/biglietti-ddd-open-space-2025-verona-875895776847?aff=founders

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INTR3

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https://github.com/Ace68/MonitoringAndLoggingWithDotNet

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