Axway Microservice Platform

Introduction to AMP
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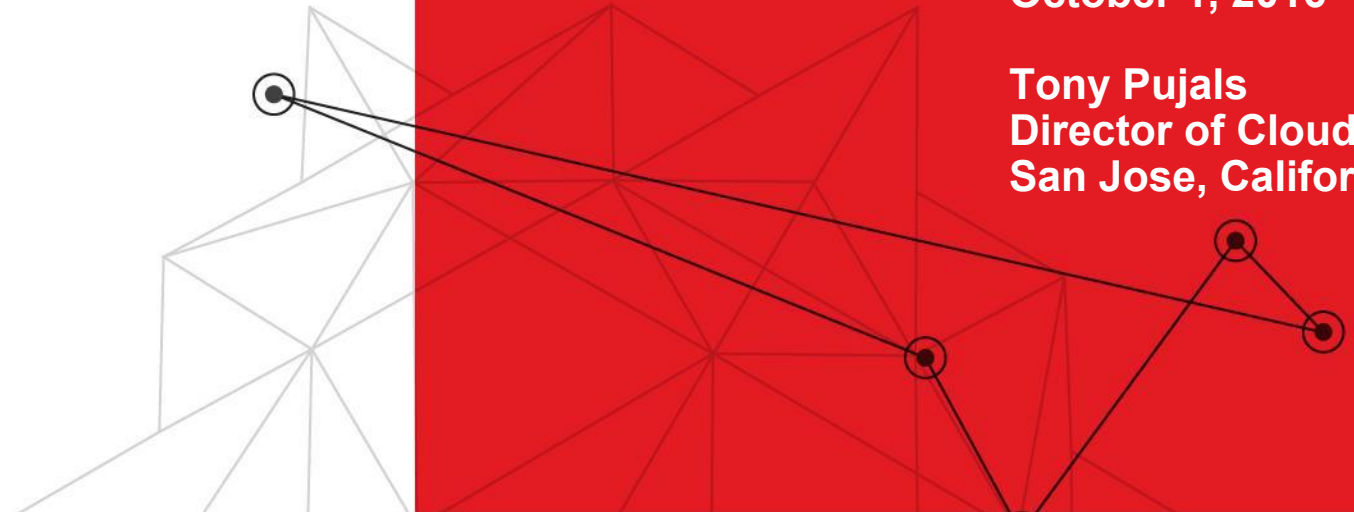
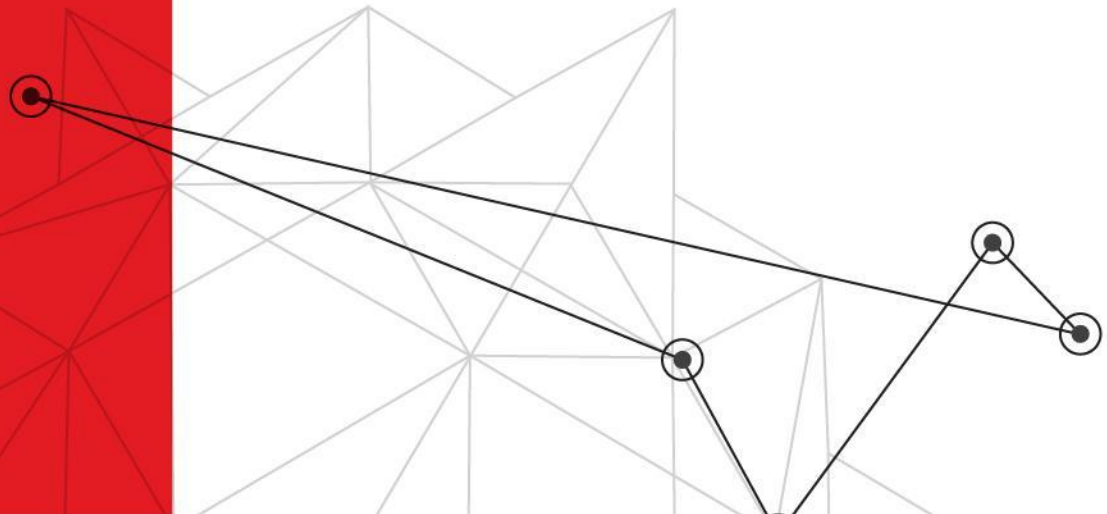


What is AMP

- ✓ AMP is an open source platform for deploying, managing, and monitoring containerized services on both cloud and on-premises computing infrastructure.
- ✓ Provides everything needed for enterprise R&D projects
  - Spin up and scale any stack of services and worker tasks
  - Healthchecks, extensive metrics, multiplexed logging
  - Government grade security features
  - Distributed key-value store and high throughput message queue
  - Designed for scale and high availability

AMP

Executive Summary



The Cloud

Executive Summary

- ✓ Amazon didn't invent cloud computing per se, but a decade ago hardware virtualization technology allowed it to launch the Elastic Compute Cloud (EC2) service, popularizing the modern concept of the cloud.
- ✓ By 2008, Google launched Google App Engine, and Microsoft launched Windows Azure (now Microsoft Azure) in late 2009.

Hardware virtualization provided the foundation for self-service, on-demand compute resources "in the cloud."

Containers - Microservices & Serverless

Executive Summary

- ✓ Linux Containers is an operating system-level virtualization technology that allows processes to run completely isolated from each other — as if they ran on separate computers.
- ✓ Docker didn't invent Linux Container technology, but like Amazon in 2006, it triggered a seismic shift by making it accessible to the broad developer community.

Container technology helps you move faster enabling microservices and on-demand (so-called "serverless") compute workers feasible and pragmatic.

AMP

Executive Summary

- ✓ AMP provides a multitenant Container-as-a-Service (CaaS) foundation
- ✓ It is designed to run in both public cloud and on-premises environments
- ✓ It is intended to support
  - public customers in the public hosted environment
  - private customers in dedicated hosted and on-prem environments
  - Axway products (including packaged as an on-prem bundle)
  - Axway internal services

How is AMP Differentiated?

Executive Summary

- ✓ Provides enabling technology for R&D
  - includes distributed key-value storage and high capacity message queue services for tasks
- ✓ Strong emphasis on observability
  - Unified, multiplexed logs and system statistics
  - Filtered queries and live streaming
- ✓ Axway enterprise features
  - API Gateway, policy managed security, federation, etc.
  - B2B business integration
  - Extensive data connectors (Salesforce, etc)

What is AMP's Current Status?

Executive Summary

- ✓ The core foundation for running, scaling and monitoring both services and stacks (related services) is in place
- ✓ Successful start of Limited Preview with the Axway Engage (Community Manager) team
  - They are already able to run a significant portion of their stack on AMP
- ✓ AMP has an API, a CLI, and a minimalist Web UI (for development only)

AMP Roadmap

Executive Summary

- ✓ Technical Preview — "Internal beta" in mid-November, 2016
- ✓ Restricted Availability — "Internal GA" in mid-January, 2017
  - API Gateway integration
  - Storage volume backups
- ✓ Public Beta — Late February, 2017
  - Self service web portal
- ✓ Public GA — April, 2017
  - B2B, data connectors

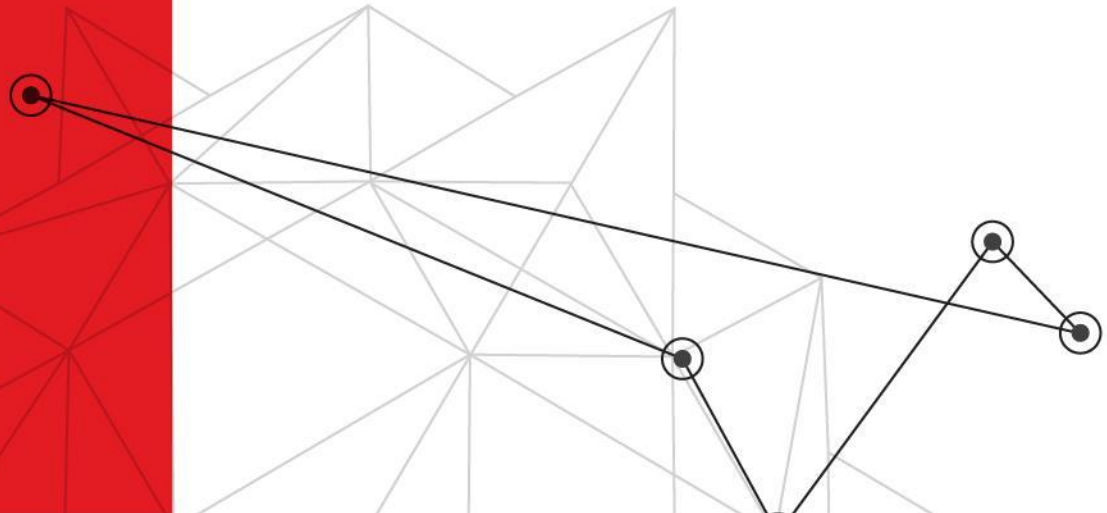
AMP High Level Product Backlog / roadmap

Executive Summary

- Use AMP to support Serverless Computing
- Key-value store and message queue exposed to individual stacks
- Extended network policies support
- Event stream, timer, and endpoint triggers
- API Gateway integration
- Identity provider integration
- Storage volume backups
- Data connector integration
- Self service web portal

AMP

Overview



What is AMP?

Overview

AMP is a platform for deploying, managing, and monitoring containerized services on both cloud and on-premises computing infrastructure.

What is AMP?

Container-as-a-Service

AMP provides a Container-as-a-Service (CaaS) platform that is the foundation for running other stacks of services.

What is AMP?

Serverless Compute Platform

AMP provides a Function-as-a-Service (generally called serverless computing) that can schedule and execute tasks in response to various triggers:

- ✓ on demand
- ✓ event based
- ✓ scheduled

What is AMP?

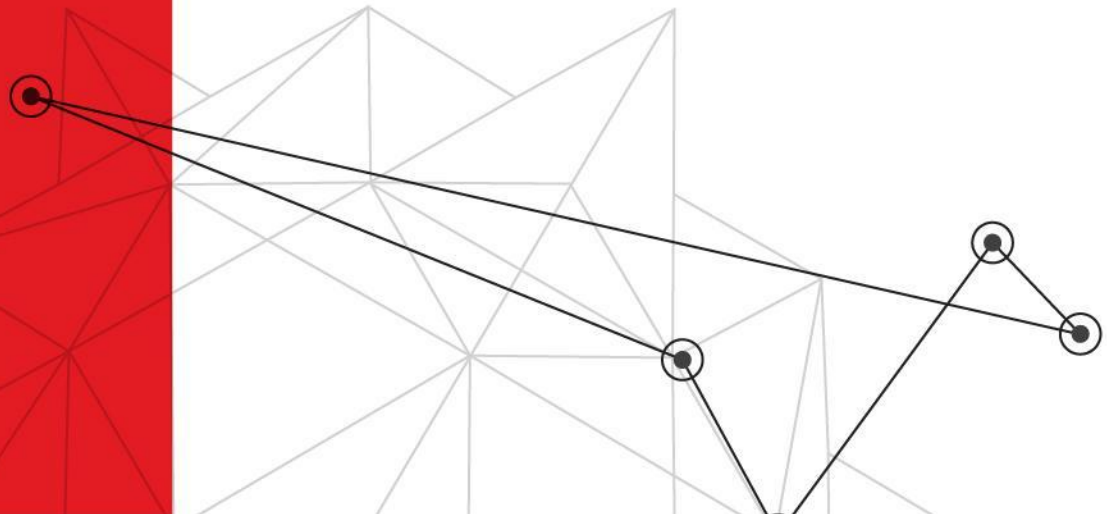
Deployment

AMP is intended to be deployed and used

- ✓ by internal product development teams
- ✓ as a public hosted cloud platform
  - self service, on demand container stacks and microservices
- ✓ on customer premises either as
  - a licensed application package bundle
  - a licensed enterprise self-service, on-demand platform

AMP

Breaking It Down



What are containers?

Containers are just Linux processes that have special isolation features.

Why is this important?

- ✓ These isolation features provide benefits similar to virtual machines, but without all the overhead.
- ✓ Isolation is a crucial element of ensuring the runtime environment for each service is secure and doesn't affect or get affected by other services running in the infrastructure environment.

What is Docker?

Docker is a packaging format, suite of tools, and ecosystem for leveraging Linux container technology.

Docker provides facilities for

- ✓ Specifying a container's runtime environment using declarative, text-based files ("Dockerfile")
- ✓ Creating a binary "image" that is used to launch individual running containers
- ✓ Publishing, sharing and downloading images
- ✓ Composing images from other images

What is a Container-as-a-Service (CaaS)?

- ✓ Similar to Infrastructure-as-a-Service (IaaS), but the unit of virtualization is a container, not an entire virtual machine
- ✓ Generally runs on top of some type of IaaS
- ✓ Generally includes a repository service for secure, private image storage
- ✓ Generally exposes facilities for scheduling, discovery, and orchestration of networked containerized service stacks

Container-as-a-Service Benefits

- ✓ Similar to Infrastructure-as-a-Service (IaaS), but the unit of virtualization is a container, not an entire virtual machine
  - services start at Linux process startup speed, not minutes
  - far more efficient / cost-effective use of compute resources for scaling

How is CaaS different from PaaS?

PaaS	CaaS
Constrained to run a specific software stack (ex: Node.js).	Developer free to choose software stack (ex: Java + Python).
Can only deploy a server.	Can deploy any number of services needed for application.
Generally do not have full control of runtime environment.	Developers have full control over defining their service runtime environments.

What is Serverless Computing?

- ✓ Also known as Function-as-a-Service (FaaS)
- ✓ The unit of deployment is not a server, but simply code to run in response to some kind of trigger
  - This unit of code is often called task or worker
  - The platform is responsible for scheduling and executing the task within a specific runtime environment (secure access to other services, message queues, and data stores)

What is Serverless Computing (continued)?

- ✓ Unlike services that are always running, tasks perform work and then stop consuming resources.
- ✓ Examples of triggers include:
  - Specific events (such as when monitoring a real-time streaming event feed)
  - Notifications (subscribed to a message queue)
  - Schedule-based timers
  - API endpoints

Serverless Computing Benefits

- ✓ Developers (internal & external) can focus on business logic, not infrastructure and implementing servers
- ✓ Cost effective - pay for abstract compute resources while task runs, not for provisioned, always-on virtual machines
- ✓ Supports workflows, including potentially long-running workflows

The AMP team