

# Is it PaaS or IaaS and DevOps?

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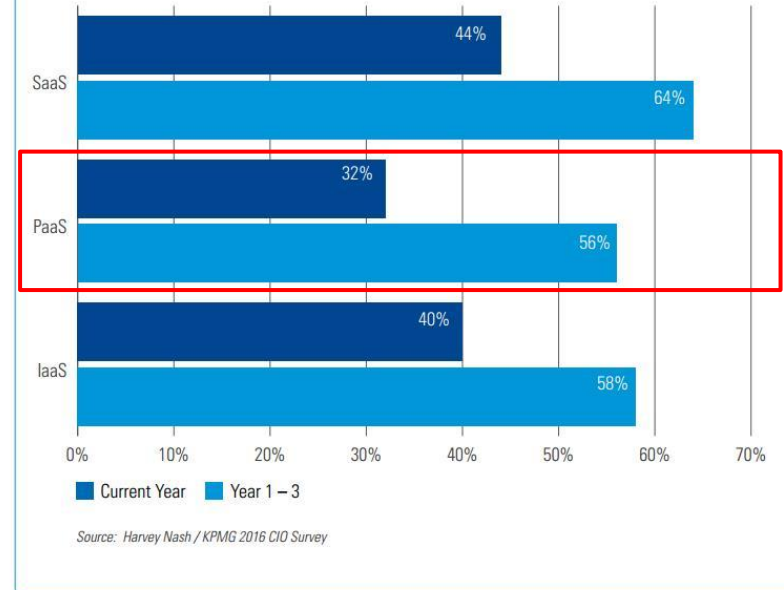
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# The rise of PaaS?

- PaaS is the fastest-growing sector of cloud platforms according to KPMG, growing from 32% in 2017 to 56% adoption in 2020.
  - Still modest compared to IaaS & SaaS
- PaaS is getting Enterprise ready
  - Large Enterprises are investing in it but mostly in Private Cloud.
    - Also in Switzerland (SwissRe, SBB, Migros, ...)
  - Growing number of providers for public and private PaaS

Figure 2: Cloud investment by type  
(Significant IT budgets > US\$250m)

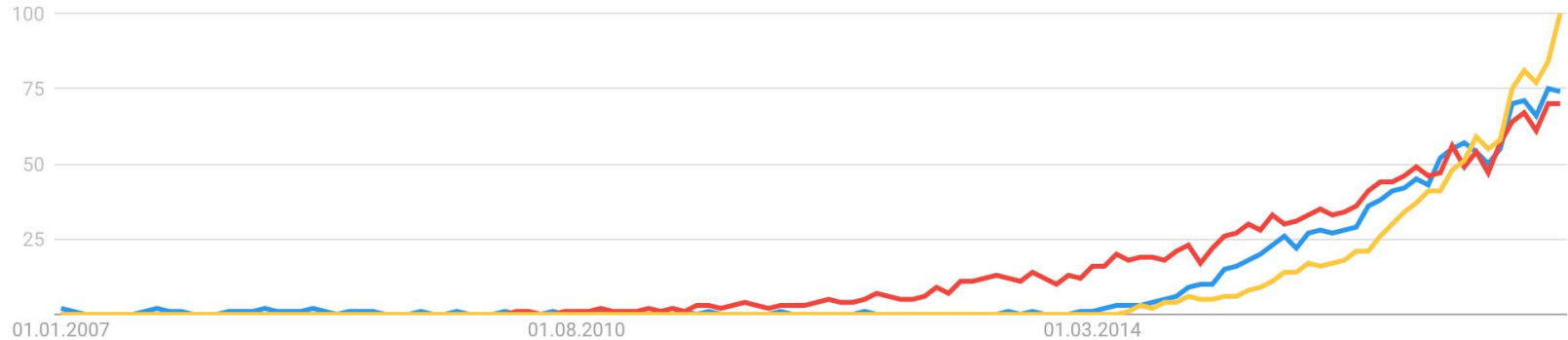


# Is it really PaaS?

Are companies really adapting PaaS?

There is a lot of hype around “new” technologies and practices used in conjunction with PaaS.

Some misleading assumptions regarding their relation to PaaS.



Google Trends: Container (y), CNA/Microservices (b), DevOps (r)

# Recap: NIST Definition of PaaS

The capability provided to the consumer is to **deploy onto the cloud** infrastructure consumer-created or acquired **applications** created using **programming languages, libraries, services, and tools supported by the provider**. **The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage**, but has control over the deployed applications and possibly configuration settings for the application-hosting environment

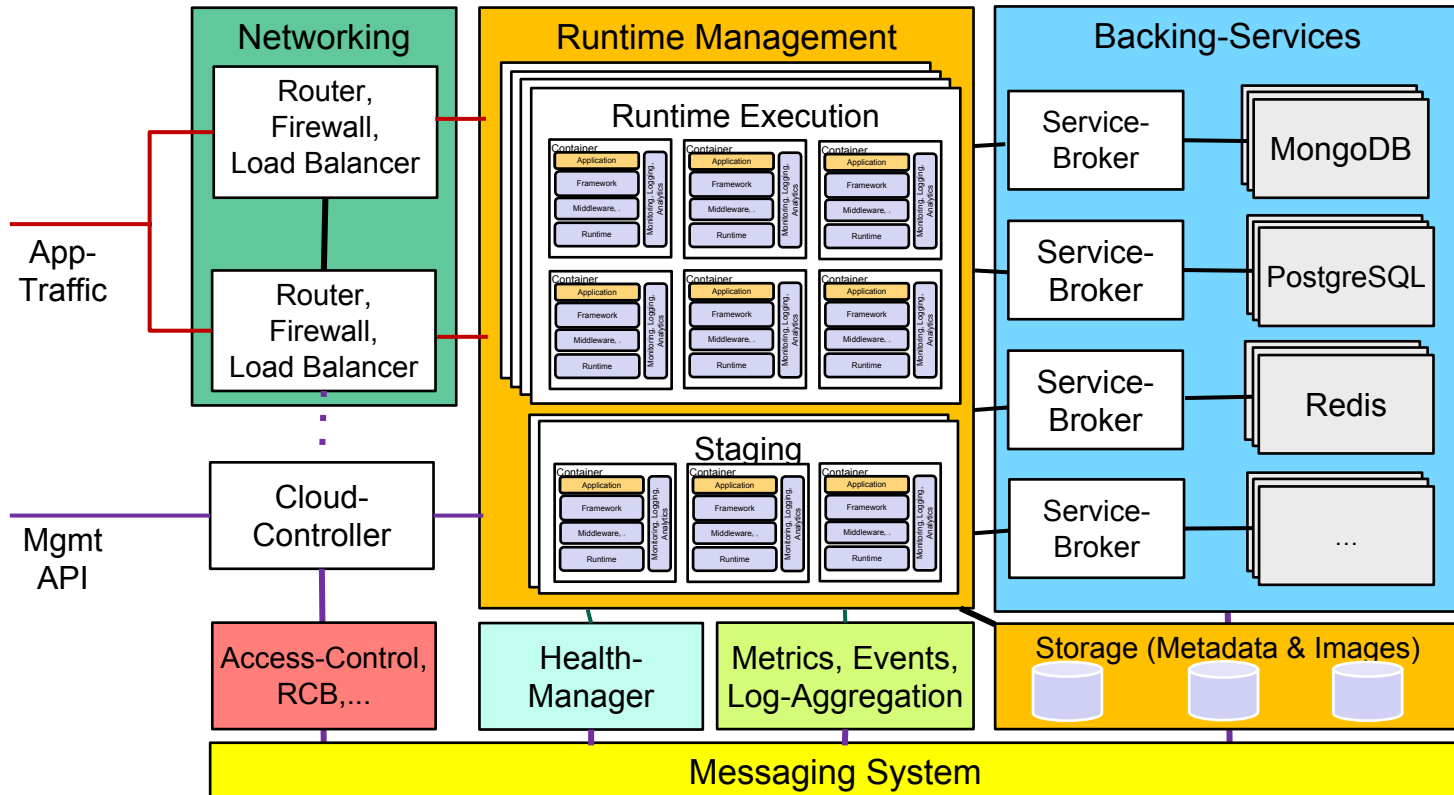
The logo for the National Institute of Standards and Technology (NIST), consisting of the letters 'NIST' in a bold, black, sans-serif font.

# PaaS & Containers

## Containers are Infrastructure components

- They provide Compute, Network & Storage
- You have to deal with OS updates
- You have to install and maintain software packages and configuration
- IaaS Frameworks (OpenStack) and tools (Chef, Ansible, ...) adapt for containers
- Modern PaaS Frameworks are complex distributed systems using Containers to run Applications, but this is only one of many functions
  - e.g. Application packaging, Monitoring, User/Rights Management, Billing, ...
  - For example Kubernetes is declaring itself as a “Container Management System” → still missing some PaaS features
- Does your PaaS (Provider) support automatic OS updates/patches?

# PaaS Core Architecture



# Prescriptive or assembly

Many companies are adopting containers by assembling their own Application Management System and Workflow.

- Building Containers (manually or using CI-System)
- Deploying using Docker Swarm, Kubernetes, ...
- Setting up monitoring infrastructure, etc...

Coherent path of ops evolution:

bare-metal → virtualization (VMs) → container

Working on low level problems, which are already solved by PaaS.

Difficult to keep up with the pace of development

# DevOps

Culture, practices and tooling to support Developers and Operations people to collaborate and foster better software quality and faster delivery.

- Problematic if reduced to tooling or cost saving aspects and not supported by the management
  - Does it contribute to product unique selling features? What is the ROI?
- **Doing it on PaaS brings some advantages**
  - Better separation of Platform and Application Operations
  - Reduced effort of implementation compared to IaaS
    - Simpler deployment and management
    - Better focus on application requirements
  - There is still a lot of to be done in Cloud Application Management
    - Check out our frameworks (Hurtle, Push2Cloud and DISCO) at the demo booth



# Cloud Native Applications

## CNA is NOT about running your legacy application in the cloud

- Some provider promote this for their infrastructure / platform
- Applications need to be adapted (or rewritten) to exploit cloud principles and features (scalability, reliability, multitenancy, ...)
  - 12 factor app principles
  - Cloud Patterns
- A lot of know-how required to migrate / rewrite an app
  - When to use Monolith, when are Microservices better?
  - Does horizontal scaling work as expected?
  - What is the best cost/performance ratio for number of instances?
  - Check out our CNA booth in the demo

# Trends

# Serverless / FaaS

**Function as a Service** provides is extending the cloud deployment models to run Application logic (functions) in the Cloud without running your own Infrastructure/Platform (serverless).

- not infrastructure centric billing → number of invocations
- triggered by events from other services (e.g. storage) or functions
- Very early stage. Not well-known yet.
- Limited tooling available.
  - Needs specific runtimes (e.g. AWS-Lambda, OpenWhisk, snafu, ...)
  - How to split up a traditional applications into serverless functions? (e.g. lambada, podilizer, termite)
  - Check out our Service-Tooling booth for demos on FaaS

# Domain specific Platforms

A platform delivering domain specific frameworks for vertical industry participants (e.g. IoT, banking, insurance, ...)

2016 we started **Cloud Robotics Initiative**

- Cloud Robotics closes the gap between cloud and physical interacting devices.
- Provides a platform to allow “normal” developers and robotics specialists to work together and implement new kinds of applications.
- See demo at Cloud Robotics booth



# Conclusion

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- PaaS is getting mature and is getting traction in Switzerland
- Many companies are already using Containers like Infrastructure and create their own tooling and workflows
- Building the DevOps Tooling on top of a PaaS is more efficient
- Migrating applications resp. developing for the Cloud needs a lot of know-how
- Serverless/FaaS still too early for enterprise
- Large effort in developer tooling needed to make PaaS easy to use and successful

Thank you for your attention

Visit our demo booths in the Foyer

