Cloud Standards

Introduction

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- *De jure* and/or *de facto* standards
- Attempts to agree on a communication protocol
- Possibility to avoid vendor lock-in for users
- Facilitate interoperability between components
- Standardization bodies: ISO, IEEE, W3C, IETF, OGF, . . .

https://xkcd.com/927/

– Virtual Appliances –

Open Virtualization Format (OVF):

- ▶ DMTF's standard for appliance packaging (published as ISO 17203)
- ▶ Enables the authoring of portable virtual systems and the transport of virtual systems
- ▶ Supports various disk formats (see below)

Disk Format:

- ▶ Often specific for the given virtualization platform
- ▶ Open formats: cow, qcow, qcow2, raw, . . .
- ▶ Proprietary formats: vmdk, vdi, vhd, . . .

– Management –

- ▶ OGF's **O**pen **C**loud **C**omputing **I**terface
- ▶ Boundary-level interoperability and extensibility protocol
- ▶ Abstract nature, extensions for specific areas of functionality
- ▶ RESTful API over HTTP (plain or JSON rendering)

- ▶ DMTF's **C**loud **I**nfrastructure **M**anagement **I**nterface
- ▶ Specifically targeting IaaS cloud APIs
- ▶ Other areas such as PaaS or SaaS out-of-scope
- ▶ RESTful API over HTTP (XML or JSON rendering)

- Amazon's proprietary **E**lastic **C**loud **C**ompute interface
- Considered a *de facto* standard due to its popularity
- Other platforms offering reverse-engineered equivalents
  $\rightarrow$ sub-sets of features

– Storage –

- ▶ SNIA's **C**loud **D**ata **M**anagement **I**nterface
- ▶ API to create, retrieve, update and delete data elements
- ▶ Oriented towards so-called object storage (not block or fs-based)
- ▶ Handling data and associated metadata

- Amazon's proprietary **S**imple **S**torage **S**ervice interface
- Considered a *de facto* standard due to its popularity
- Other platforms offering reverse-engineered equivalents
  $\rightarrow$ sub-sets of features

– Service Orchestration –

- ▶ OASIS' **T**opology and **O**rchestration **S**pecification for **C**loud **A**pplications
- ▶ Enhancing the portability of cloud applications and services
- ▶ Describes service components, component relationships, operational behavior

- OpenStack's platform-specific **H**eat **O**rchestration **T**emplate
- Replacing the earlier CloudFormation-compatible format
- YAML-formatted resource templates, input parameters and outputs

- Amazon's proprietary way to create and manage collections resources
- Considered a *de facto* standard due to its popularity
- Other platforms offering reverse-engineered equivalents
  $\rightarrow$ sub-sets of features

– That's All Folks! –

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Do you have any questions?

▶ ask **NOW!**

▶ ask us directly at parak@cesnet.cz or sustr4@cesnet.cz

▶ send your questions to cloud@metacentrum.cz