

International Working Group on Cloud Computing Resiliency

Downtime statistics of current cloud solutions

(Update version - March 2014)

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I. INTRODUCTION

In recent years, cloud computing has received considerable attention from global businesses and government agencies in economies. Regarding the potential and impact of cloud computing in the world, providing reliable services to meet the requirements of mission critical systems becomes more and more important. Meanwhile, the lack of reliability of cloud services is not commonly known by industry. In order to monitor and analyze cloud computing resiliency, IWGCR presents its short report aggregates information from press releases and provides a brief summary of availability of major cloud providers.

II. PRESS RELEASES

We gather information from cloud provider status dashboard and press releases. Main press sources are:

- BBC,
- BGR.com,
- Bloomberg.com,
- CIO.com,
- CloudPro.co.uk,
- Computing.co.uk,
- Datacenterknowledge.com,
- DSReports,
- FastCompany,
- gigaom,
- Huffingtonpost.com,
- Informationweek,
- iilcom.com,
- Zdnet.com,

III. SERVICE DOWNTIME

Table I shows all cloud services downtime we have grabbed from press releases and cloud computing providers. Below are some examples of stories of cloud service failure, their causes and consequences. All the failures we have noted are available on the IWGCR website.

¹IWGCR: The International Working Group on Cloud Computing Resiliency
²<http://iwgcr.org>

A. Year 2007

- 165,000 website hosted by NavSite suddenly went offline and were offline during 1 full week.
- Hostway migrated several thousand servers from Miami to Tampa. This relocation resulted thousands of sites offline during 3 days.
- ServerBeach datacenters were affected by a power outage. The downtime lasted 4 hours.

B. Year 2008

- Twitter had often been down on and off for hours.

C. Year 2009

- OVH was down for 1 full week because of ZFS failure.
- Amazon and Microsoft datacenters downed by lightning in Dublin. Some sites that rely on one of its storage services took between 24 to 48 hours to recover.
- The Gmail service was not available during 4 hours.
- Paypal was down for 5 hours. Performance problem was detected and the outage affects ebay transactions.

D. Year 2010

- Amadeus got two failures in 3 months. This outage forced some airlines to check in manually in 1 hour.

E. Year 2011

- A 3 days blackout interrupted email and Internet services for tens of millions of users of BlackBerry.
- Microsoft Azure was offline for 7 hours.
- Yahoo! mail went down for 6 hours. More than 1 million users were affected.
- Users were unable to access Google Docs List in 1 hour.

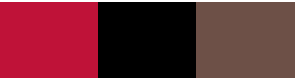
F. Year 2012

- Routers failed during 2 hours in OVH.
- Major Facebook outage disrupted users worldwide during 3 hours.
- FirstServer has suffered an outage for 30 minutes by trying to update some servers against security vulnerability. More than 5,000 enterprises have lost data.

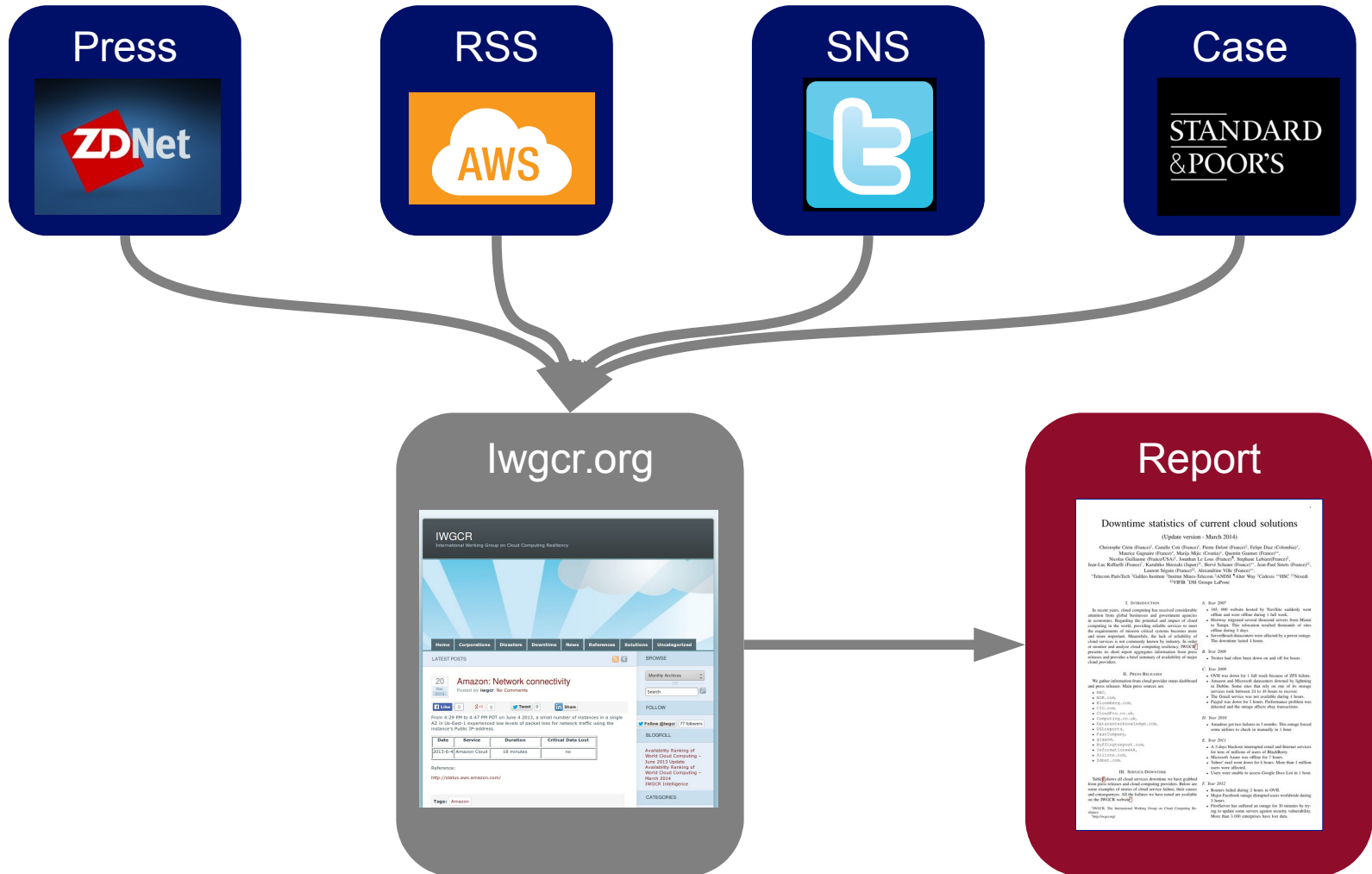
Downtime Statistics of Current Cloud Solutions

- Marija Mijic
- www.iwgcr.org



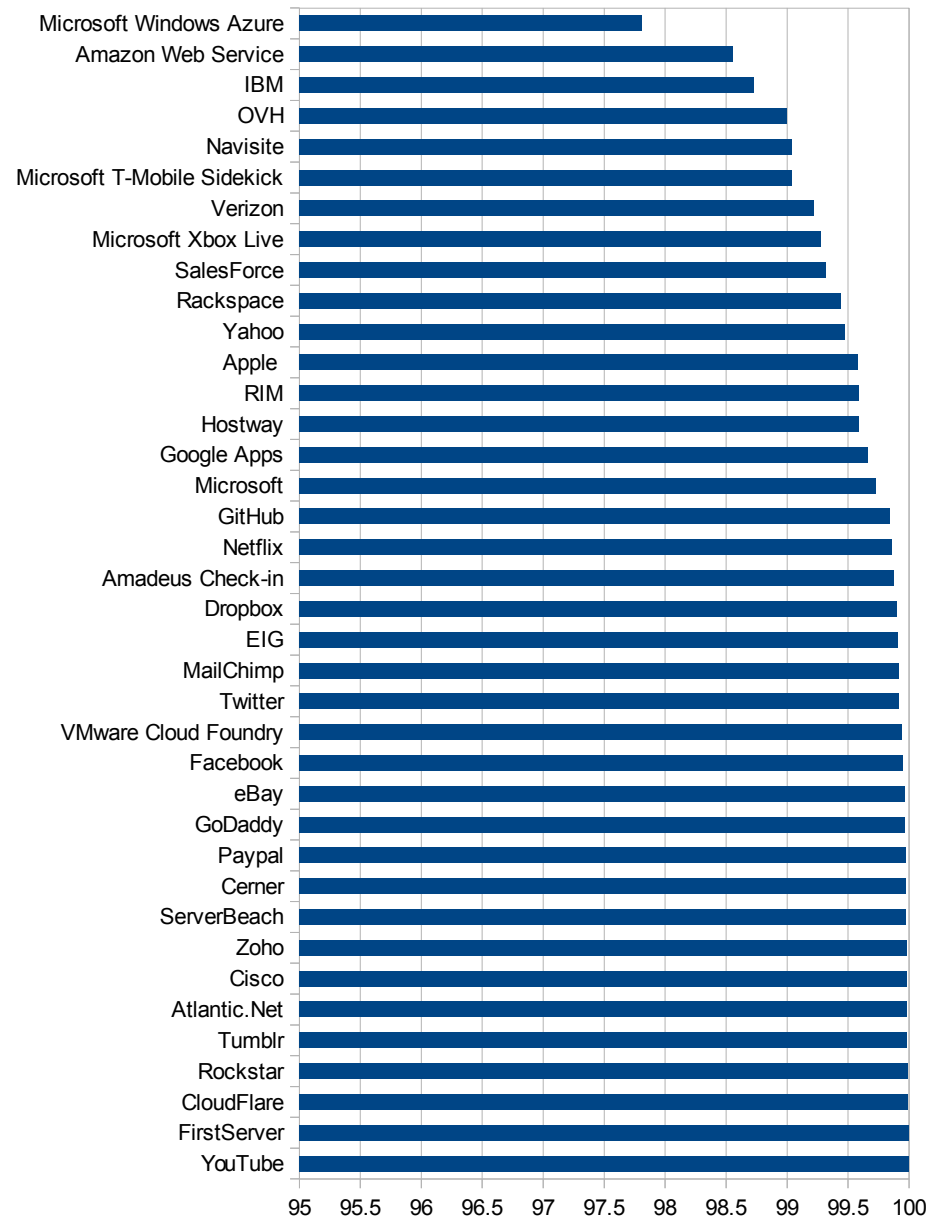
- 
- “If the automobile had followed the same development cycle as the computer, a Rolls-Royce would today cost \$100, get a million miles per gallon, and explode once a year, killing everyone inside.”
– Robert X. Cringely

ARWC - Version 1

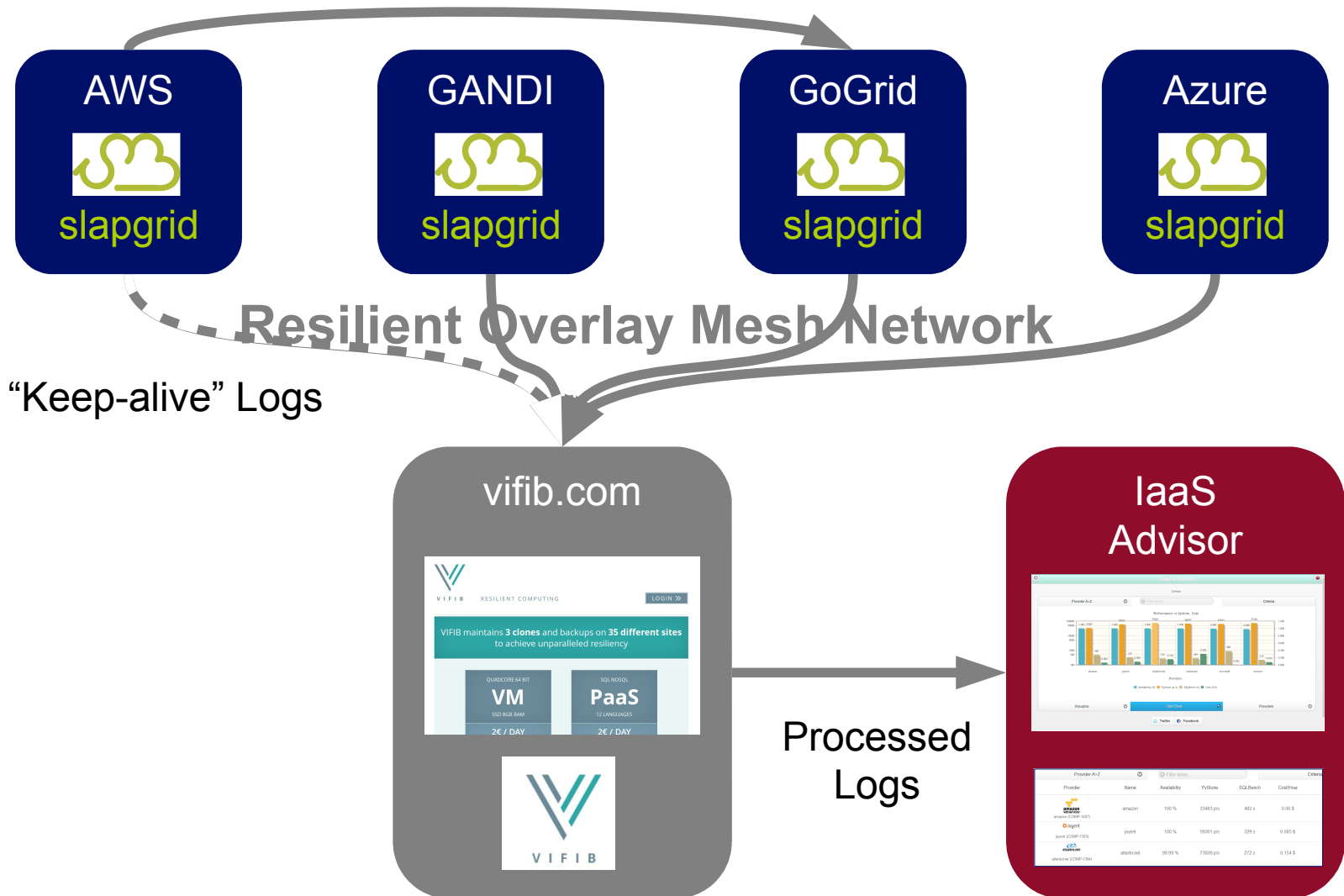


Statistics

- **Average annual downtime: 9.909 h**
- **Average availability: 99.604%**
- **Data loss annual occurrence: about 1%**
- **Case 1: Mistake (SAN)**
- **Case 2: Mistake (SAN)**
- **Case 3: Bug (SAN)**



ARWC - Version 2



ARWC - Version 2

www.iaasadvisor.com

The screenshot shows the IAAS-Advisor web application. The title bar is light green and says "IAAS-Advisor". The main content area is titled "Cloud-Hosting Price Comparison and Performance Benchmark". Below the title, it says "Matching Provider Profiles: > 6". There are four sliders for configuration: "Storage" (with a "GB" unit), "RAM" (with a "GB" unit), "CPU" (with a "Hz" unit), and "Architecture" (with a dropdown menu showing "Please select"). Below the sliders are two buttons: "Test this configuration" and "Show all Providers". At the bottom, there are social media links for "Twitter" and "Facebook", and a footer with links for "Legal Notice", "Contact", and "IAAS-Advisor". The footer also contains the text "Copyright 2013 NEXEDI SA- All rights reserved".

ARWC - Version 2

www.iaasadvisor.com

Search Results







Criteria:

Provider A>Z

▼

Filter items...

Criteria

Provider	Name	Availability	PyStone	SQLBench	Cost/Hour	Details
<div><div></div><div>amazon (COMP-1407)</div></div>	amazon	100 %	33483 p/s	482 s	0.06 \$	<div><div></div>Details</div>
<div><div></div><div>joyent (COMP-1393)</div></div>	joyent	100 %	59361 p/s	329 s	0.085 \$	<div><div></div>Details</div>
<div><div></div><div>atlanticnet (COMP-1394)</div></div>	atlanticnet	99.99 %	73926 p/s	272 s	0.154 \$	<div><div></div>Details</div>
<div><div></div><div>rackspace (COMP-1288)</div></div>	rackspace	99.74 %	66457 p/s	284 s	0.3 \$	<div><div></div>Details</div>
<div><div></div><div>microsoft (COMP-1392)</div></div>	microsoft	99.28 %	63643 p/s	889 s	n/a	<div><div></div>Details</div>
<div><div></div><div>vmware (COMP-1395)</div></div>	vmware	98.21 %	73166 p/s	219 s	0.074 \$	<div><div></div>Details</div>

Show as list

▼

Start Over

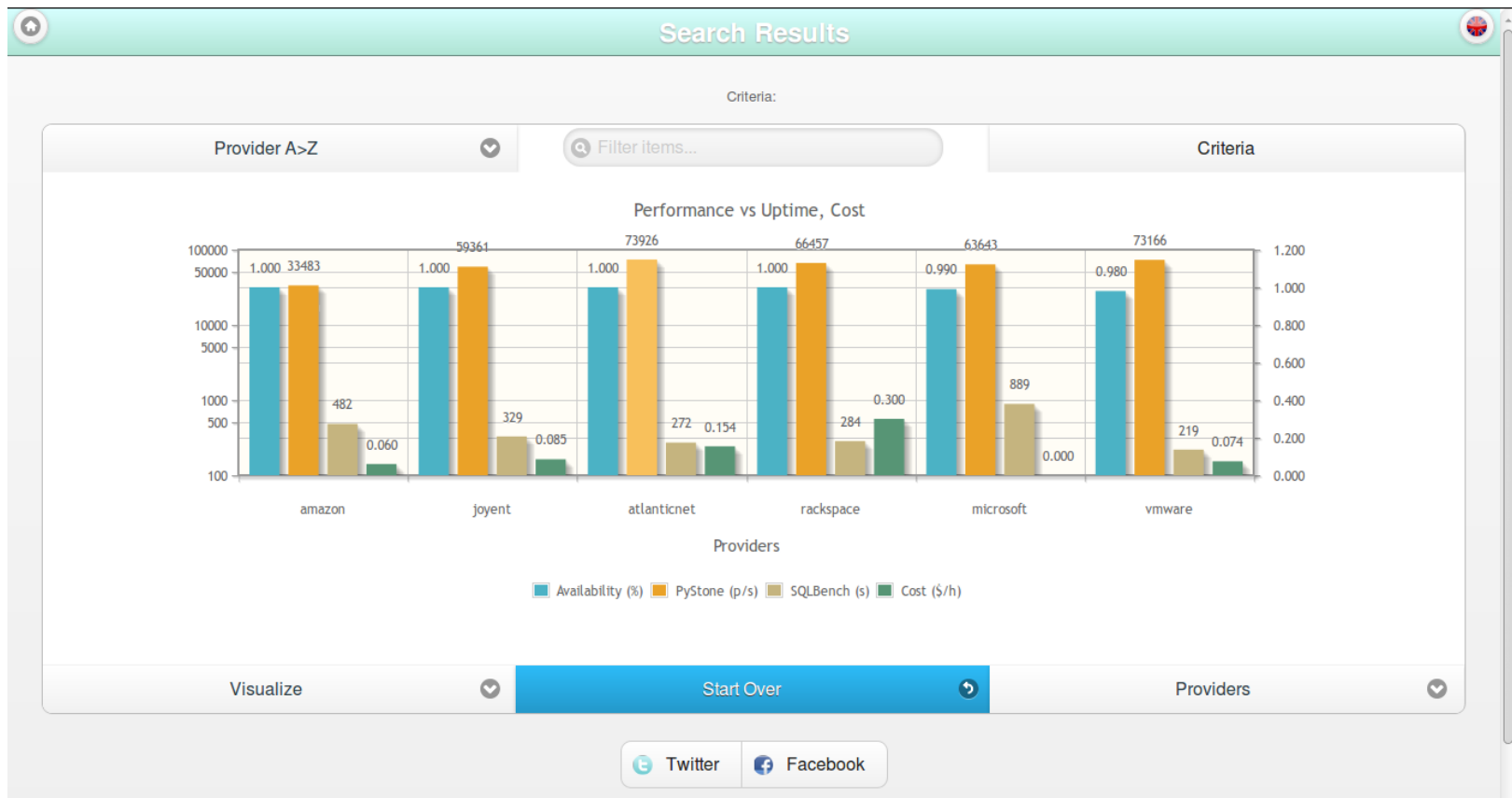
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Providers

▼

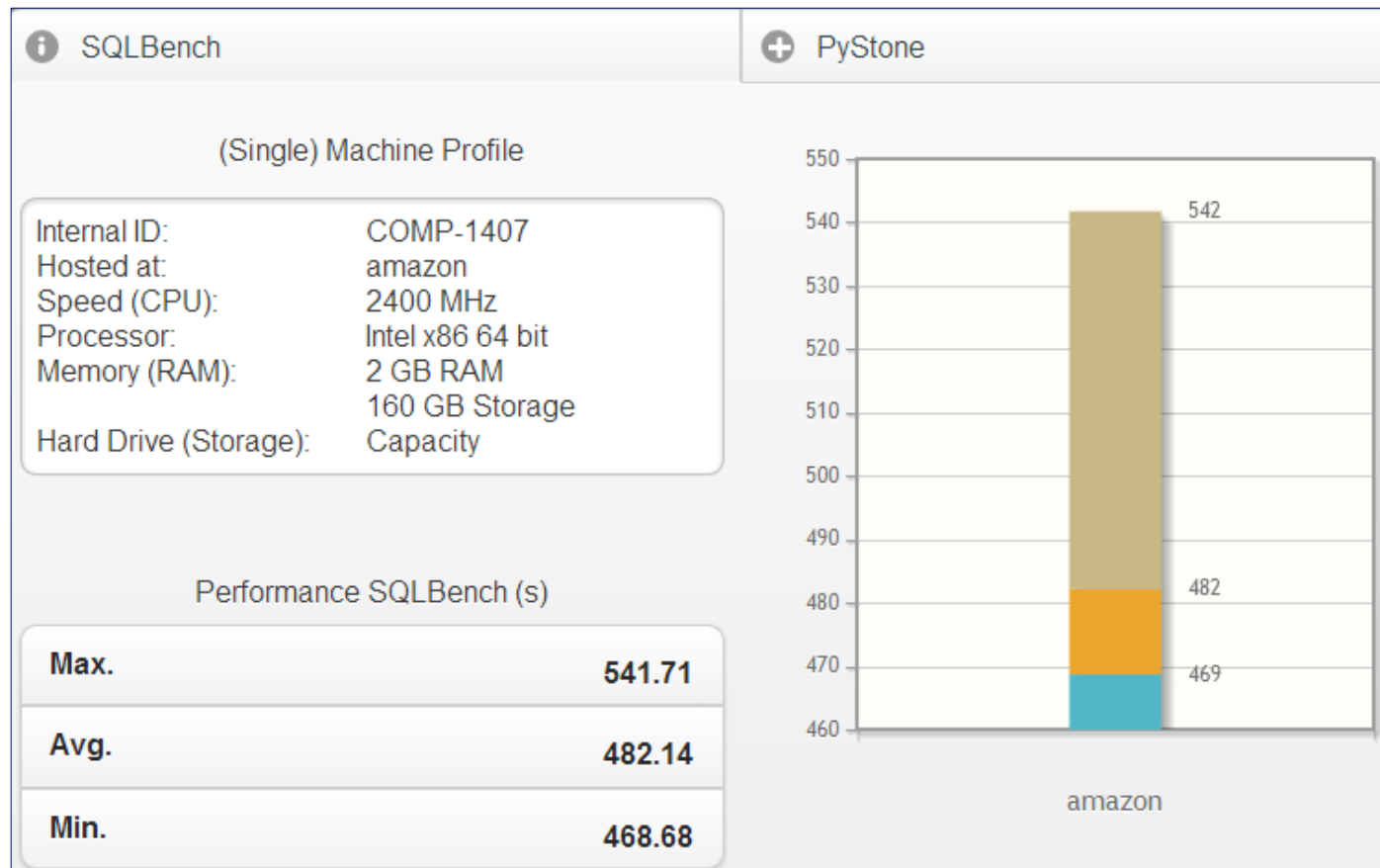
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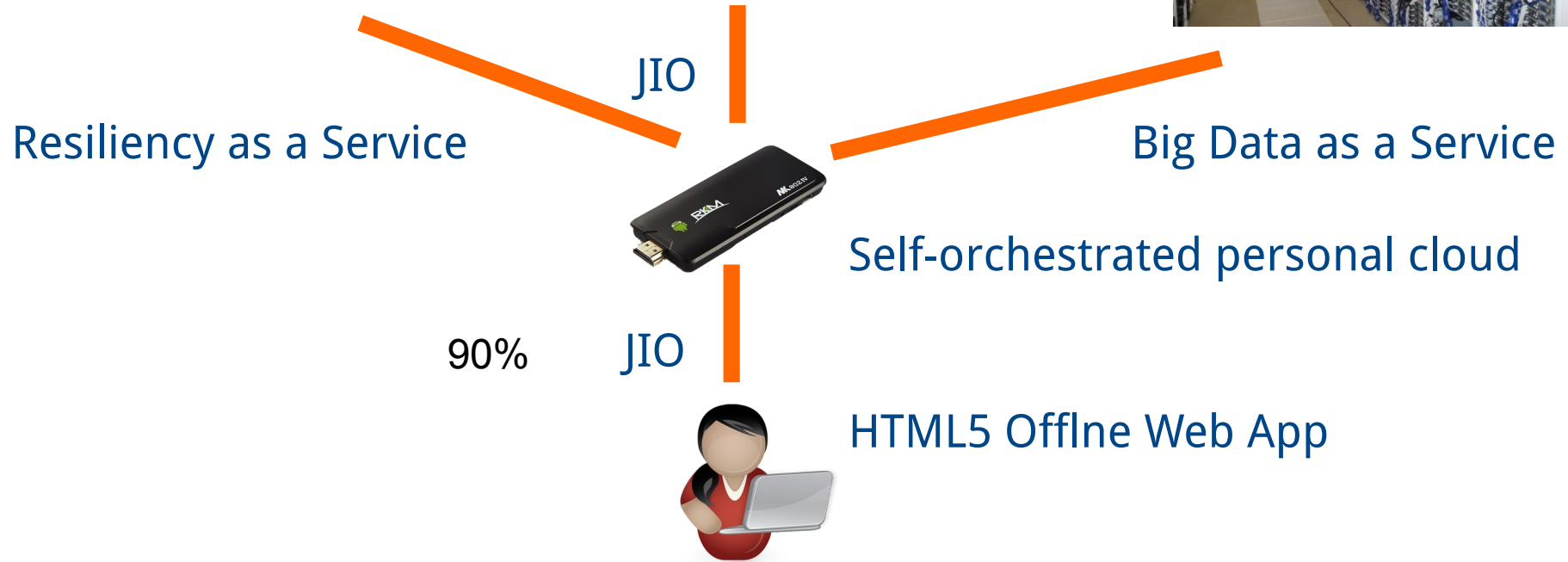
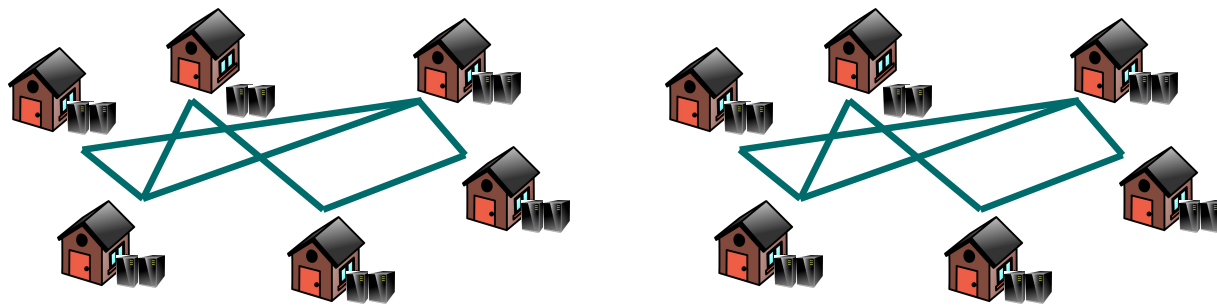




Future work

- **Extend Version 2 with more data sources**
- **Apply Big Data (Wendelin Exanalytics) to correlate Version 1 and Version 2 and provide predictions**
- **Multicloud / personal cloud perspective**

Multicloud perspective



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