



4 ans pour passer de Java 7 à Java 8 sur Google App Engine? Oh les nuls de chez Google...

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Google Cloud



https://en.wikipedia.org/wiki/Platform_as_a_service

In April 2008, Google launched App Engine, with a free trial version limited to 10,000 developers.^[16] This was said to have "turned the Internet cloud computing space into a fully-fledged industry virtually overnight."^[17]

2009, Cloud, Infrastructure, Container

The image shows a screenshot of a YouTube video player. The main content is a presentation slide with a white background and dark borders on the left and right sides. The title of the slide is "What is Google App Engine?". Below the title is a bulleted list of features:

- A cloud-computing platform
- Run your web apps on Google's infrastructure
- We provide the container and services (PaaS)
 - Hardware, connectivity
 - Operating system
 - JVM
 - Servlet container
 - Software services

At the bottom of the slide, there is a navigation bar with icons for back, forward, and search, and a progress bar indicating the video is at 0:49 / 55:00. The YouTube player interface includes a "Google I/O" logo, a "CC" button, a settings gear, a full-screen icon, and a "SUBSCRIBE 1.3M" button.

Google I/O 2009 - App Engine: Now Serving Java
19,689 views

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Source: <https://www.youtube.com/watch?v=ofn8QYEVyhA> Google I/O 27 May 2009 - App Engine: Now Serving Java

At Google, everything runs
in a container

On average, we launch
4 billion
new containers per week



Java Support

- Servlets
- Software services
- Sandboxing
- DevAppServer
- Deployment
- Tooling



JAVA 6

Sandboxing

Google I/O 2009 - App Engine: Now Serving Java

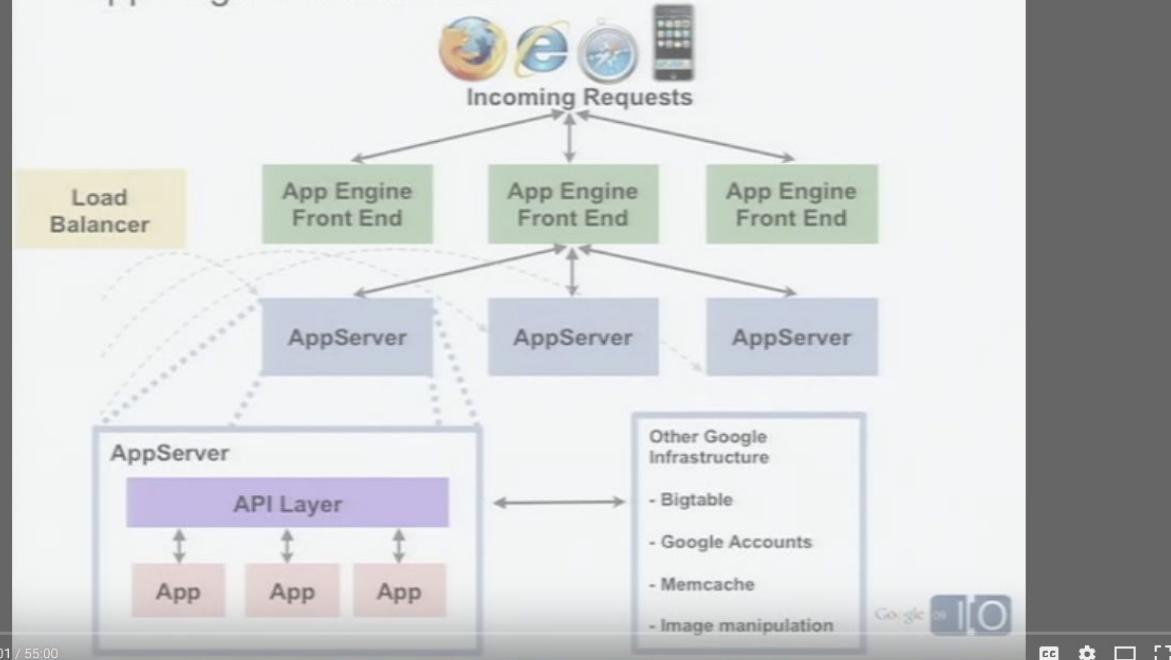
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App Engine Architecture



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Sandboxing

- What do we do?
 - Restrict JVM permissions
 - WhiteList classes
- Why is it necessary?
 - Clustering - JVMs come and go
 - Protect applications from one another
 - Quality of service

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True for:

JAVA 6

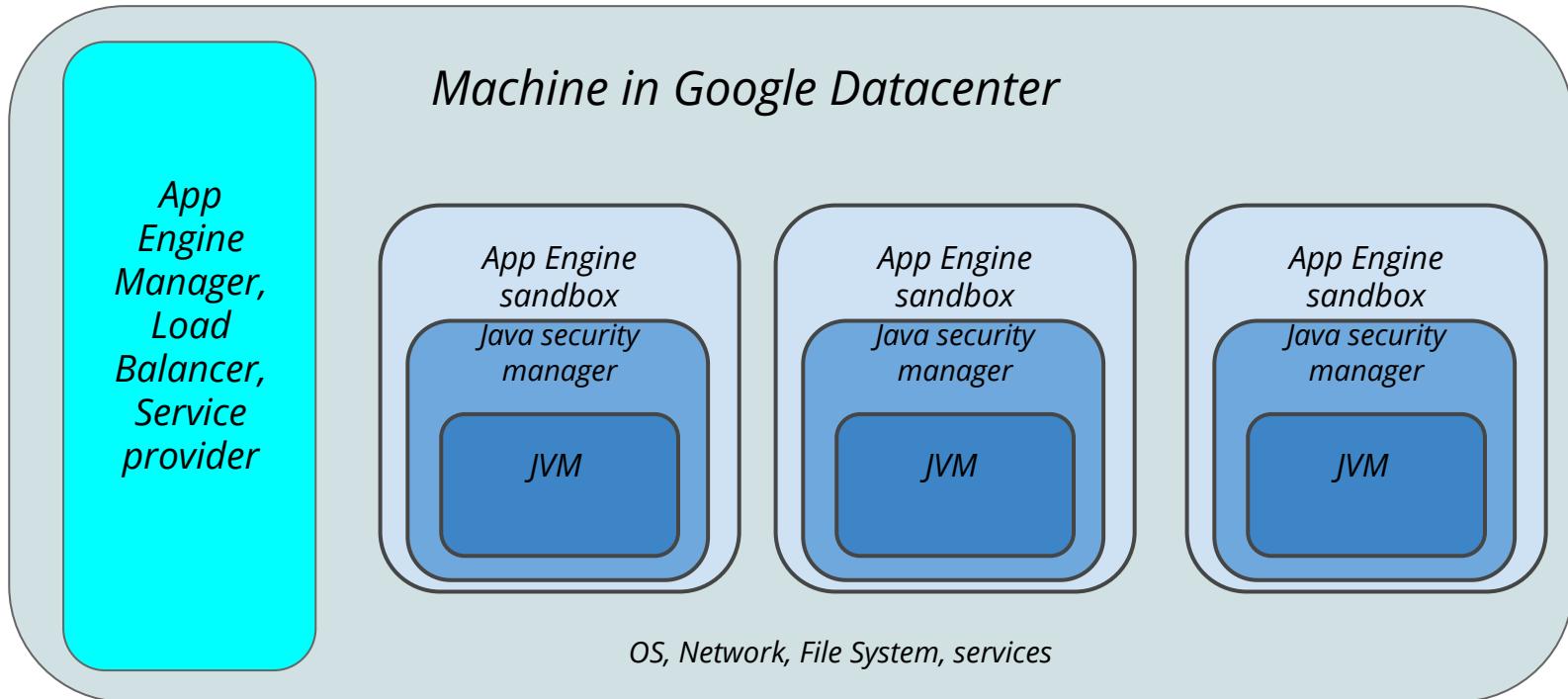
JAVA 7

Gone for:

JAVA 8

Source: <https://www.youtube.com/watch?v=ofn8QYEVyhA> Google I/O 27 May 2009 - App Engine: Now Serving Java

App Engine Security Sandbox



Google's purpose-built
chip to establish
hardware root of trust

The original App Engine Security Sandbox

- Google Security team mandates more than 1 security layer
 - For Java6, Java7: we used the Java Security Mechanisms
 - Java Security Manager,Java Permissions
 - Class whitelist
 - User Code introspection to detect vectors of attacks
- Java 7 exposed more ways to be attacked via Invoke Dynamic and Method Handler
- The upgrade of this security layer was evaluated as impossible:
 - You cannot trust the JVM security layer anymore

App Engine Security attacks: (some, public ones)

"MORE THAN 30 VULNERABILITIES FOUND IN GOOGLE APP ENGINE"

<https://www.computerworld.com/article/2857007/more-than-30-vulnerabilities-found-in-google-app-engine.html>



"DETAILS OF UNPATCHED VULNERABILITIES IN GOOGLE APP ENGINE REVEALED"

<http://www.zdnet.com/article/details-of-unpatched-vulnerabilities-in-google-app-engine-revealed/>



"CUSTOM GOOGLE APP ENGINE TWEAK STILL LEADS TO JAVA SANDBOX ESCAPES"



"GOOGLE AWARDS STUDENT 10K FOR DISCOVERY OF APP ENGINE DATA LEAK FLAW"

<http://www.zdnet.com/article/google-awards-student-10k-for-discovery-of-app-engine-flaw>



"TODAY'S CPU VULNERABILITY: WHAT YOU NEED TO KNOW"

<https://security.googleblog.com/2018/01/todays-cpu-vulnerability-what-you-need.html>



MASSIVE BUG MAY HAVE LEAKED USER DATA FROM MILLIONS OF SITES. SO ... CHANGE YOUR PASSWORDS

Equifax Data Breach Impacts 143 Million Americans

2.5 Million More Americans Added To The Equifax Security Leak, What To Do Now

Cause: not patched Apache Java Struts vulnerability...

Sandboxing Restrictions

Restriction	Alternative
Threads	Async API (coming soon)
Direct network connections	URLConnection
Direct file system writes	Memory, memcache, datastore
Java2D	Images API Software rendering
Native code	Pure Java Libraries

▶ ▶ ⏪ 17:26 / 55:00

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Back to 2009

2018 Java8: All limitations gone with the new Sandboxing

Source: <https://www.youtube.com/watch?v=ofn8QYEVyhA> Google I/O 27 May 2009 - App Engine: Now Serving Java

	Release Year	App Engine Support
JAVA 6	2006	2009-2017
JAVA 7	2011	2013
JAVA 8	2014	2017- (LTS) New sandbox
Java SE 9	2017 Sept	Nope
Java SE 10 (18.3)	2018 March	Nope
JAVA 11	2018 Sept	? LTS





App Engine

Now serving
320 Billion
requests per day

Google Cloud



The new App Engine Security Sandbox

- A virtualization based sandbox
- Providing strong isolation and security guarantees by adopting an application OS approach.
- It's **not** a virtual machine.
- It allows most Linux syscalls (250+ and growing).
- It's lightweight and fast
- It doesn't require **any** changes to the Java JVM/Libraries.

Java 8 Standard App Engine Runtime

- Launched **GA** Sept 26th 2017
- Very Strict backward compatibility for Millions of Apps
- **Without** the previous limitations
- Allowing **both** the Standard GAE APIs and the Cloud APIs
- Already serving **Millions** of Queries Per Second (QPS)
- Open JDK 8 and Jetty 9 (Servlet 3.1 based)

Google Cloud

A photograph of a large industrial facility at sunset. In the foreground, there are several large, rectangular metal cooling towers with louvered sides and walkways. Below them, a complex network of steel beams, pipes, and walkways forms a structural framework. In the background, the sun is low on the horizon, casting a warm orange glow across the sky, which transitions into a darker blue. The overall scene suggests a modern industrial or data center facility.

Merci

A large, empty search input field with a thin gray border. In the top right corner of the input field is a small microphone icon consisting of three colored dots (blue, red, and green) arranged in a triangular shape.

Google Search

I'm Feeling Lucky



Google



Google Search

I'm Feeling Lucky

