

W3C and Cloud: Where do we meet?

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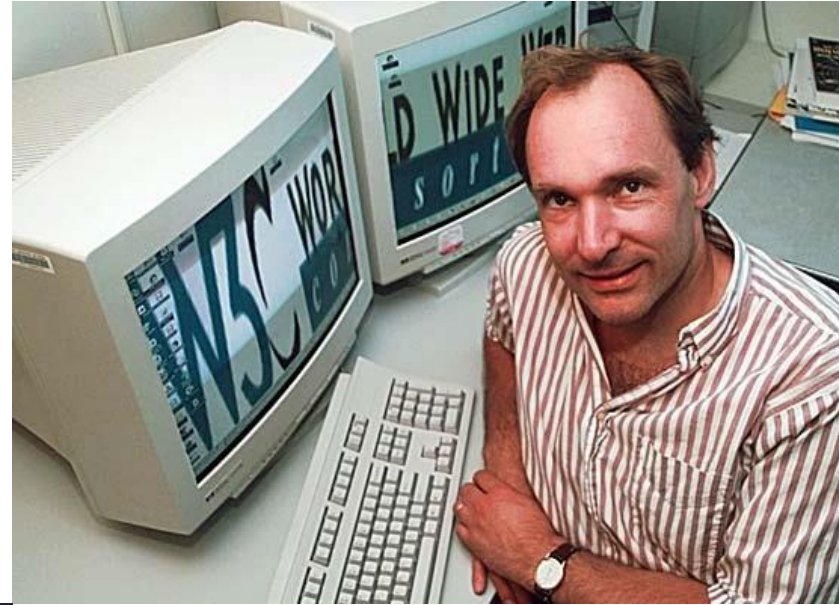
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W3C/Beihang Host

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尽展万维网全部潜能
Lead the Web to its full potential



Anyone
Anytime
Anywhere
Any device

W3C Overview

- World Wide Web Consortium (W3C)
 - ~400 members
 - IT, non-IT, universities/institute/agencies
 - Global participates
 - Decentralized Architecture: 4 Hosts (MIT/ERCIM/KEIO/Beihang)
 - Global BD: ~20 offices in different countries
 - ~50 WGs, ~300 CGs, ~ 5000 Participants.

Mission of W3C

- Put the web to its full potential
 - Core + Web for All (WAI, i18n)
- Core: Define objects on the web
 - **Address (URL), Formats, interactions, links, ...**
 - **Pages: HTML+CSS**
 - **Data on the Web: XML, Semantic (RDF/SPARQL)**
 - **Services: WS-* standards (WSDL, SOAP, ...) , not popular now, but ...**
- **Then, What's Next?**

Change #1: Pages -> Apps

- Web or Native, this is a question...
- What web developers needs
 - Compatible capabilities
 - ... mainly from local devices / OS / browsers
 - ... and this reached to HTML5
 - Performance
 - Application life cycles



Application Lifecycle

Example: news app

Native

Installable (engagement+)

Available offline, background sync

Deeper hardware integration

Alerts (engagement+)

Rich

Web

No installation needed (shareability+)

Primarily on-line experience

Privacy guarantees

Reach

Change #1b: Apps -> Pages

- Web or Native, this is a question...
- Most of the Apps are linking
 - ... with other apps
 - ... with back end platforms / capabilities / services
 - Identities, Payments,
 - ... with the contents / data
 - ... with the global data base – the WEB
- That's what Web Do!

Change #2: PC->Phone->Devices

- Browser/Web Apps running on



Change #2: PC->Phone->Devices

- Browser/Web Apps running on
 - Mobile
 - TV
 - Cars , and maybe planes, rockets, satellites?
 - Linked Cars: OBD Data on the Web (Automotive WG)
 - Sensors, actors
 - Internet of Things need Web
- Make “objects” available ubiquitously
 - New Capabilities: NFC, Geolocation, ...

Change #3: Linked Page to Linked Data

- Big Data Era: Web is the biggest open data source , and **DECENTRALIZED** in nature.
- Government Open Data
- Linked Data
 - From RDF/SPARQL to LDP
 - Decentralized inter-connected data base / center
- DWBP
 - Data On The Web Best Practices
 - From XML to JSON, RDF, and to CSV

Change #4: New Services

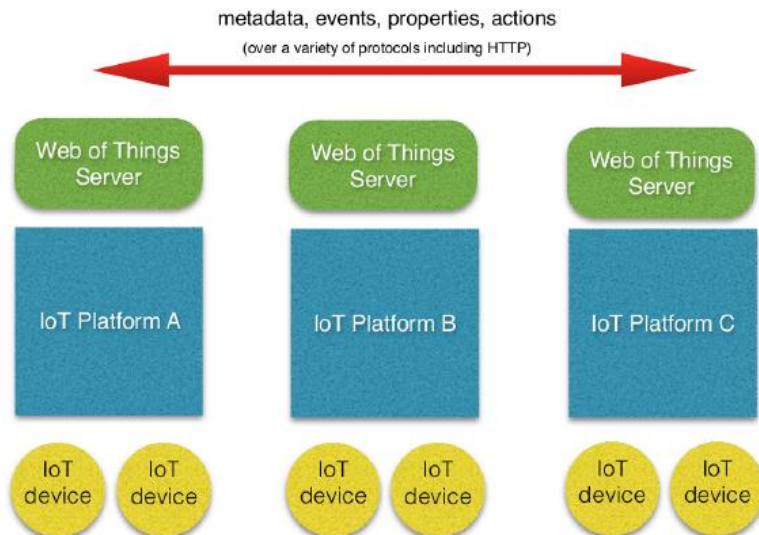
- The **HEAVY Web Services** work is done!
 - WSDL, SOAP, ...
- But the SOA still active
 - More lightway approachs are adopted by industry

Change #4: New Services

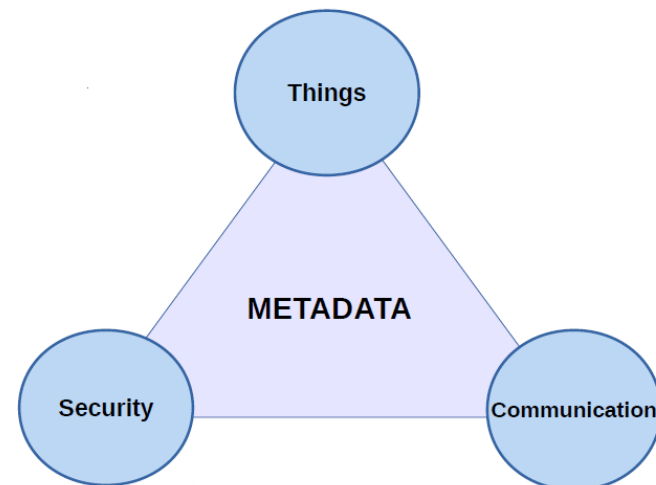
- Web of Things
 - Motivation: Coordination between WoT Servers
 - Jan 2015: pre-standardization work

The Web as the Solution

"Things" as virtual objects acting as proxies for physical and abstract entities



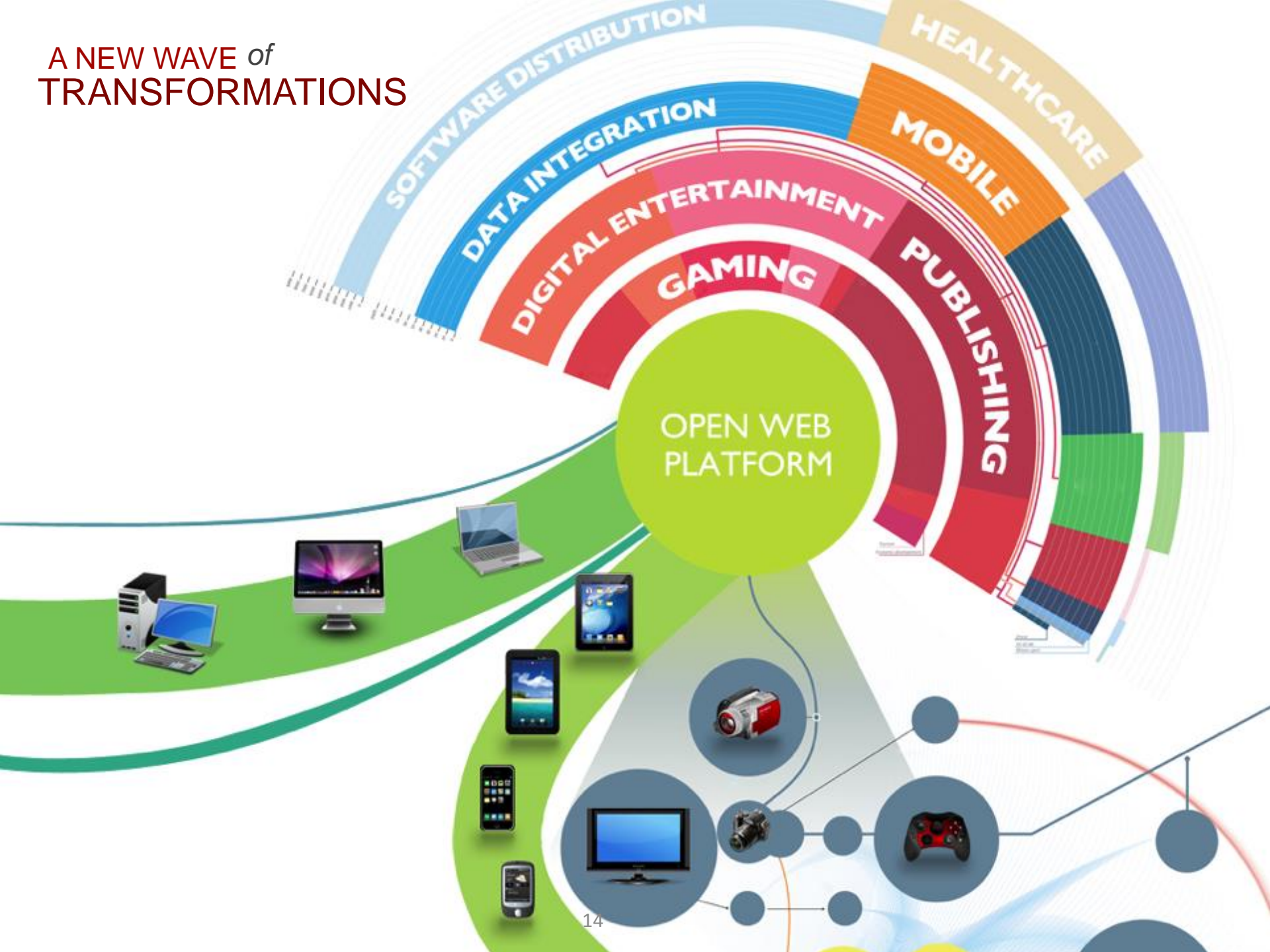
Three Classes of Metadata



Change #5: Security & Privacy

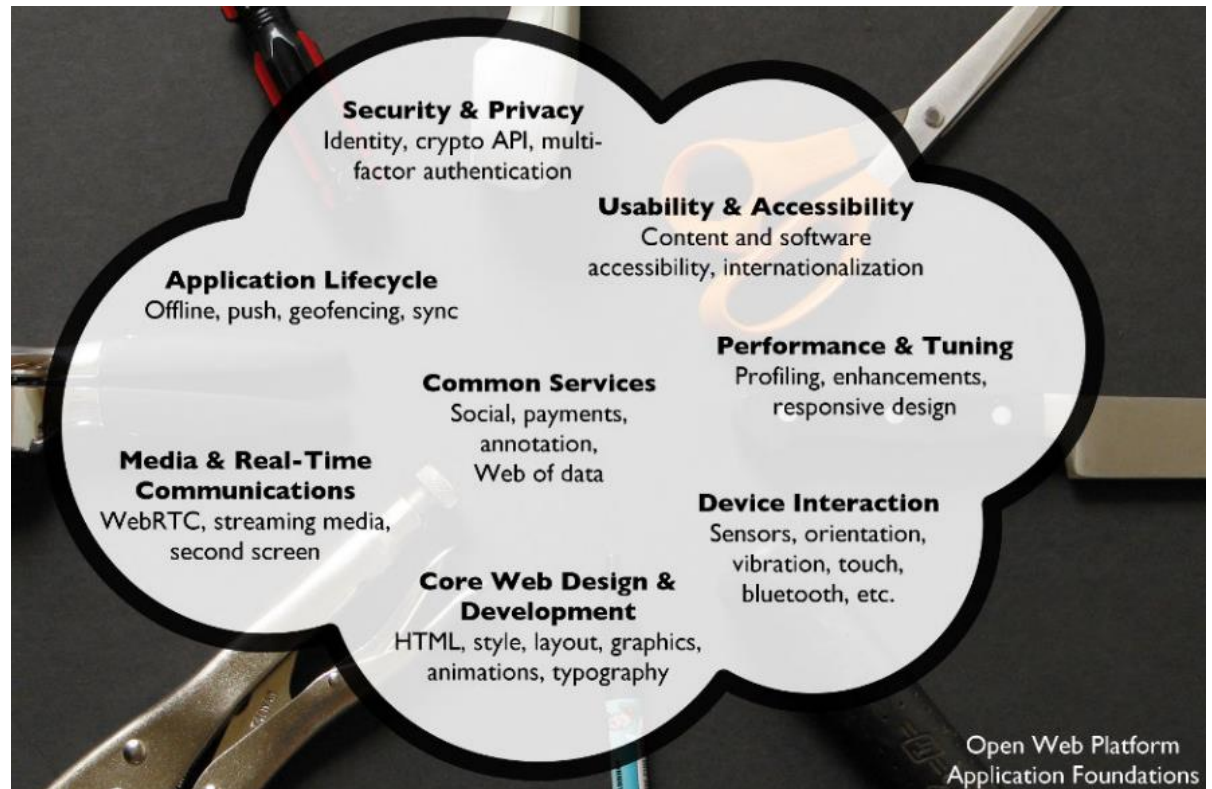
- Snowden
 - To build more secure Web
 - Build better context and channel between Web browser and Server (IEEE HTTP/2, SCP, Mixed Content, Privileged Context, ...)
- No privacy in Big Data Era ?
 - Balancing the privacy and Web innovation
 - DNT, Tracking Scope...

A NEW WAVE *of* TRANSFORMATIONS



OWP: Core+AF

- Core: HTML+CSS+W4A
- Application Foundation:
 - from OS level capability to **platform level capability**



Web vs. Cloud

- Web:
 - More upper layer
- Cloud:
 - Infrastructures
 - Services

Web and Cloud

Both Large Economic Forces

- Web/Internet
 - [McKinsey 2011](#): Almost **\$8 trillion** exchange hands annually in e-commerce
 - ... and the Web is much more than e-commerce
- Cloud
 - [Gartner](#): “The public cloud services market is forecast to grow 19.6 percent in 2012 to total **\$109 billion worldwide.**”
 - [Forrester](#): “The SaaS software market will increase 25 percent in 2013 to **\$59 billion**, a 25 percent increase. In 2014, the market is expected to total \$75 billion.”
 - [McKinsey 2013](#): “We estimate the total potential economic impact for cloud technology across sized applications could be \$1.7 trillion to \$6.2 trillion **in 2025...**”

Look at this...

8 Trillion v 100 Billion



Lessons learned from Web standards

- Universal architecture
- Interoperability
- Design for All
- Royalty Free policy
- Open Source vs. Open Standards

Open sources need Open standards

- Vendors make different choices for different business goals
- Design choices based on devices supported
- Open source reduces barriers to entry
 - Which brings in more players and diversity
 - Which perversely creates more choices and fragmentation
 - Unless there is also a standard

Open Standards

- Due process, cooperation, broad consensus, transparency
- Multi-stakeholder participation
 - *Address use cases for diverse use cases*
 - *For social issues such as privacy you need all players*
 - *Web is global; need international participation*
- Longevity
 - *Ensure humanity's knowledge remains available long into the future*
 - *Specifications are freely available*



Open Participation

Participation

	AC 2012	AC 2013	AC 2014	AC 2015
TOTAL	358	370	378	398
Full	79	79	83	90
CG/BG Groups	82	128	193	205
CG/BG People	>1,280	>2,850	>4,000	5,002
Twitter followers	35K	62K	84.5K	120K

Web vs. Cloud: Where meets?

- #1: Service Capability
 - To provide more *cloud service* capability to web applications
 - Cloud Storage/Web Storage
 - Capability Merging between Cloud and Client
 - Fundamental Services: Identity, Web Payment
 - Apps need more lightweight APIs
 - Good example: DMTF CIMI Restful HTTP
 - Cloud services need Open Standards
 - To avoid *vendor lock-in*

Web vs. Cloud: Where meets?

- #2: Data and Semantics
 - To provide more Data and Semantics to Apps
 - Semantic Web: RDF, SPARQL
 - Government Open Data (data.gov), open data market
 - Vision of W3C: linking data on the web
 - Linked Data Platform
 - Global linked database

Web vs. Cloud: Where meets?

- #3: Advanced Service Management
 - To Manage Services on the Web
 - Web of Things: WoT Services
 - Cloud Services
 - WS specs are too old, too heavy, but SOA is fine
 - Remember the triangle?
 - Endpoints and Binding: Service Interface based on Restful HTTP
 - Discovery
 - Serializing/ Deserializing Data/Parameters during services call

Web vs. Cloud: Where meets?

- #4: Shared Common Infrastructure
 - Web for All , Cloud for All
 - WAI: WCAG 2.0. Contents --- Apps --- Services --- Data
 - I18n: Multilanguage on the Web and Cloud
 - Chinese Layout Requirement (CLREQ)
 - Security and Privacy
 - Secure Communication Channel
 - Secure Context
 - User's privacy policy should be enforced: DNT, Tracking Scope, ...

Summary

- Lessons from W3C
 - Architecture, Interoperability, RF, Open Standards
- Where Web meets Cloud
 - Closely linked, but with different focus
 - W3C is happy to contribute and collaborate
 - Open Platform Capabilities
 - Data and Semantic Support
 - Advanced Service Management
 - Shared Application Foundations

The time has come

- Participating to Global efforts on Cloud Standards
- Welcome to identify new use cases and requirements for the OWP (core + AF)



Royalty-Free Standards
For
Cohesive Cloud Architecture

Thank you for your attention!

More information on

<http://www.chinaw3c.org>

<http://www.w3.org>

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