



# W3C Standards

*Shaping the Digital Economy*

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September 2016



# Who is W3C

- Standards body for Web technology
- [Created in 1994](#) by Web inventor Tim Berners-Lee
- Full-time staff of ~80 people
- [~400 Members](#), community of thousands
- [Liaisons](#) to drive interoperability; including with ISO TC 68 (TG1 and WG10)



## Participation

	<b>AC 2013</b>	<b>AC 2014</b>	<b>AC 2016</b>	<b>AC 2016</b>
<b>TOTAL</b>	370	378	398	412
<b>Full</b>	78	83	90	97
<b>Industry</b>	-	-	2	4
<b>CG/BG Groups</b>	128	193	205	245
<b>CG/BG people</b>	>2,850	>4,000	5,002	6,844
<b>Students</b>	2K	2.6K	48K	201K
<b>Twitter followers</b>	62K	84.5K	120K	153K



# What is the Open Web Platform?

- The Open Web Platform is a full-fledged programming environment for rich, interactive, cross-platform applications.
- HTML5 is the cornerstone
- Most interoperable platform in history
- A billion Web sites
- Millions of developers





# Shaping the Digital Economy





# The Digital Economy and standards

- The Web began as a means to share information
  - Businesses used it to share information...
  - ... but it was not core to the businesses
- In industry after industry, the Web has transformed the industry
  - Often becoming the delivery vehicle for the industry
  - Changing the fundamental structure of business
- Standardization has been key to allow an entire ecosystem to evolve
  - Points to the importance of standardization in business and engineering courses



# e-Commerce at W3C



## Early e-Commerce was Merchant-centric

24-hour online global presence possible

Push-only info through Web sites, email

Online distinct from in-store

Few online payment methods

Home delivery and in-store returns

No real digital coupons





## Today the Customer is in Charge

Buy based on social network recommendations and reviews

Mobile devices give information anywhere, including in-store

Online and in-store converging

Greater selection of payment methods

In-store pickup, free shipping programs

Loyalty programs, digital coupons





# Streamlined Checkout

**Status:** Launched Oct 2015. **First Public Working Draft** end of March 2016.

- Superior customer experience:
  - Less noisy presentation of payment options
  - “Set it and forget it” (great for mobile)
  - Consistent across sites
- Anticipate security through tokenization (e.g., through wallets):
  - Credentialed payments => acceptance of more methods (e.g., ACH)
  - Low-fee instruments can enable micro-payments





# Web Crypto

**Status:** [Widely supported in browsers](#); gaining broad interoperability.

- Crypto primitives for Web apps:
  - Hashing, signature generation and verification, and encryption and decryption, key management.
- For:
  - Secure messaging
  - Multi-factor authentication
  - Protected document exchange
  - Cloud storage
  - Document signing
  - Data integrity

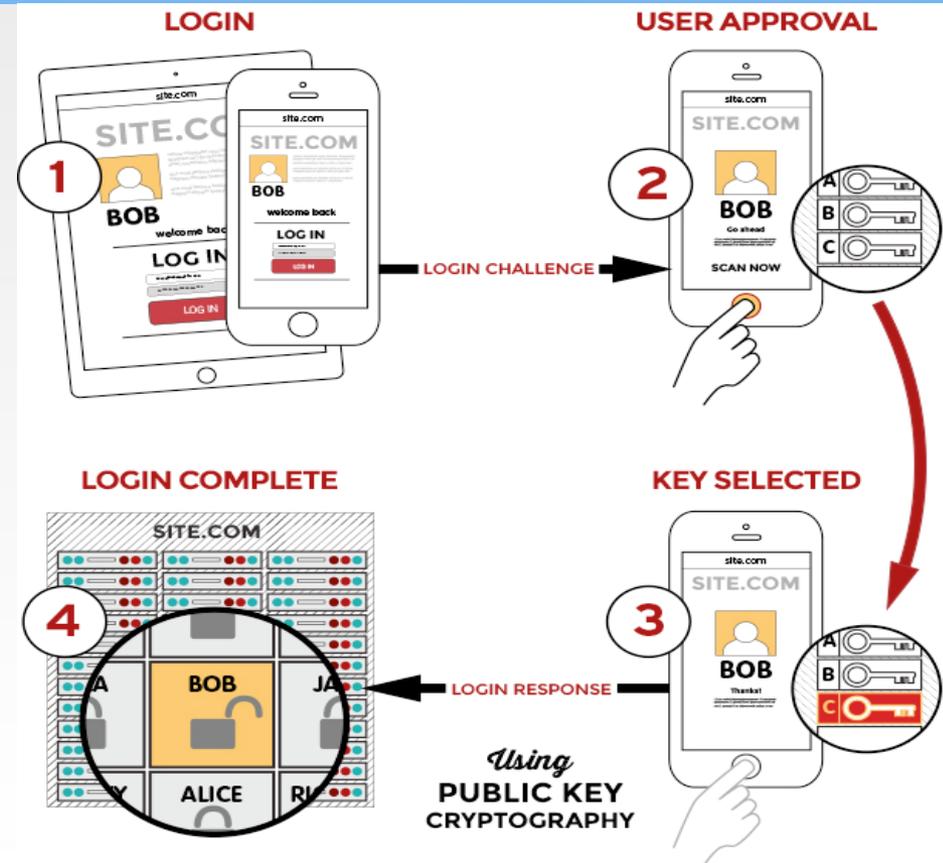




# Strong Authentication

Status: New. Launched 8 Feb 2016

- Passwords weak
  - Phishing, data loss, liability
- Replace them with logins via USB key or smartphone.
- Collaboration with FIDO Alliance, who brought 2.0 specs to W3C





# e-Commerce Next Steps

**Status:** Considering an e-Commerce W3C Workshop mid-2016; scope not yet established

- Merchants interested in:
  - Coupons, loyalty, discounts
  - Multi-tender payments
  - Harmonized experiences in-store and online
  - Omni-channel customer relations
- Coupons natural extension to current API work in WG





# Telecommunications at W3C



## The Web as the new global real-time communication platform

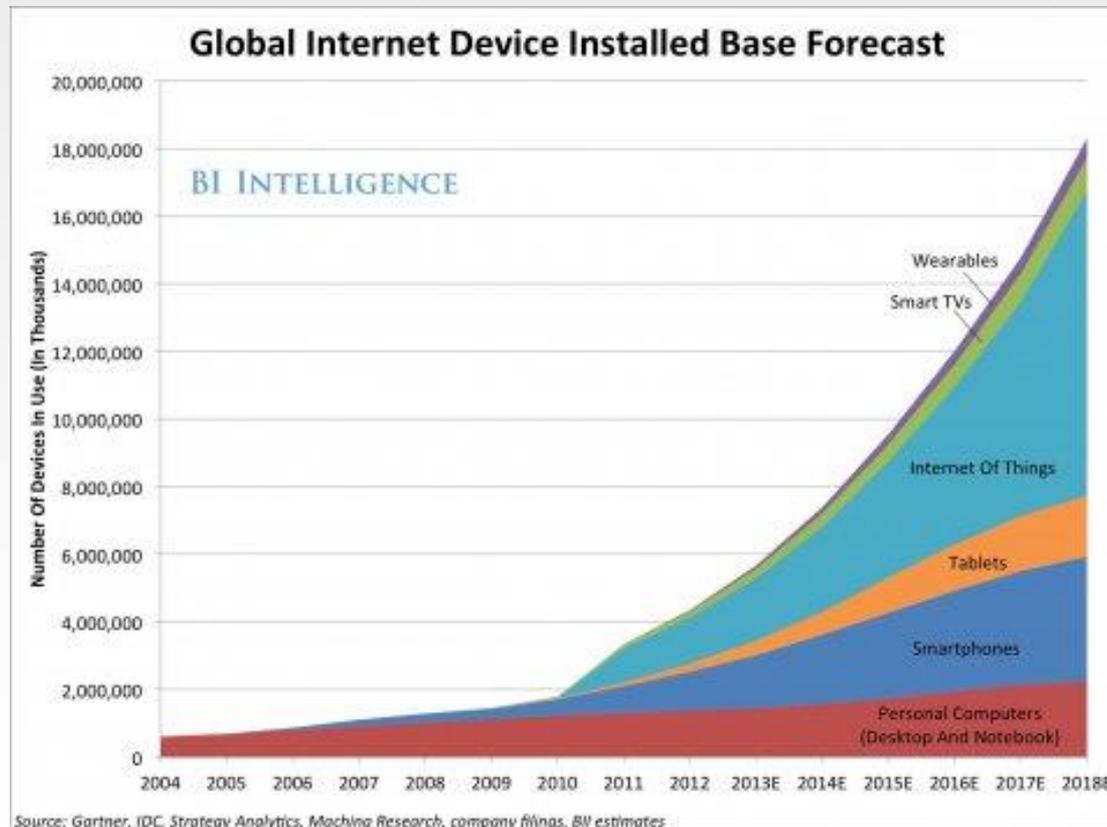
- Customers own an increasing number of devices
- They no longer want to be limited by the type of device or type of network they happen to be using
- With WebRTC, operators can expand their world-class real-time communication services to any connected device, on any network
  - « WebRTC provides an opportunity operators to compete effectively with OTTs », GSMA N2020



# Web of Things



# Web for Telcos: A platform that drives more connectivity needs





# Web of Things

Application Developer  
(WoT focus)

Platform Developer  
(IoT focus)

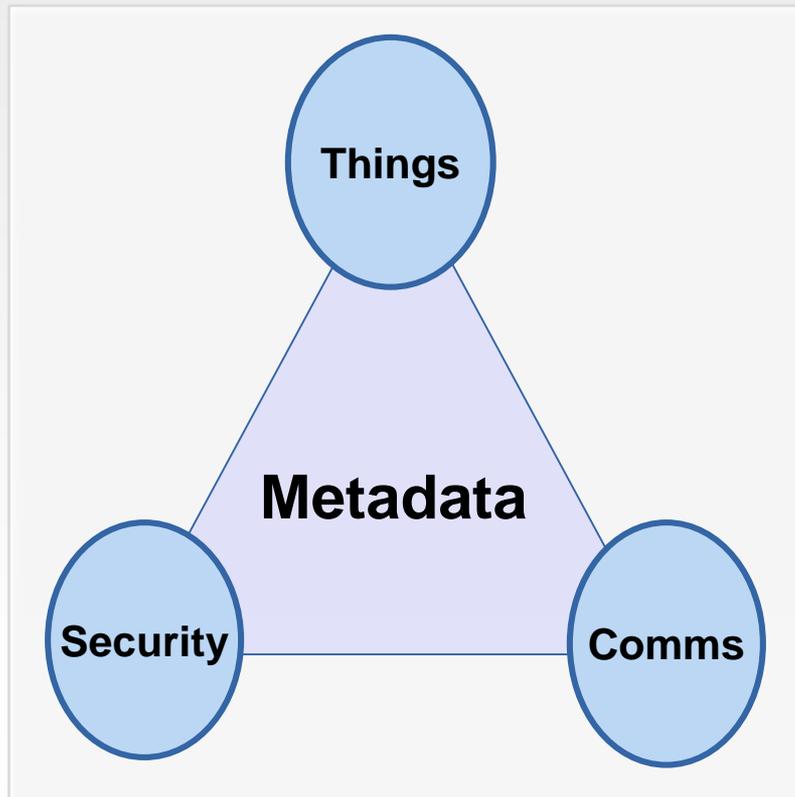
<b>Application</b>	Scripts that define thing behaviour in terms of their properties, actions and events, using APIs for control of sensor and actuator hardware
<b>Things</b>	Software objects that hold their state Abstract thing to thing messages Semantics and Metadata, Data models and Data
<b>Transfer</b>	Bindings of abstract messages to mechanisms provided by each protocol, including choice of communication pattern, e.g. pull, push, pub-sub, peer to peer, etc.
<b>Transport</b>	REST based protocols, e.g. HTTP, CoAP Pub-Sub protocols, e.g. MQTT, XMPP Others, including non IP transports, e.g. Bluetooth
<b>Network</b>	Underlying communication technology with support for exchange of simple messages (packets) Many technologies designed for different requirements



# One Level Deeper on Horizontal Metadata

19/3  
1

Core metadata applicable across application domains



## Thing descriptions

- Links to thing semantics
- Data models and relationships between things
- Dependencies and version management
- Discovery and provisioning
- Bindings to APIs and protocols

## Security related metadata

- Security practices
- Mutual authentication
- Access control
- Terms and conditions – relationship to “Liability”
- Payments
- Trust and Identity Verification
- Privacy and Provenance
- Safety, Compliance and Resilience

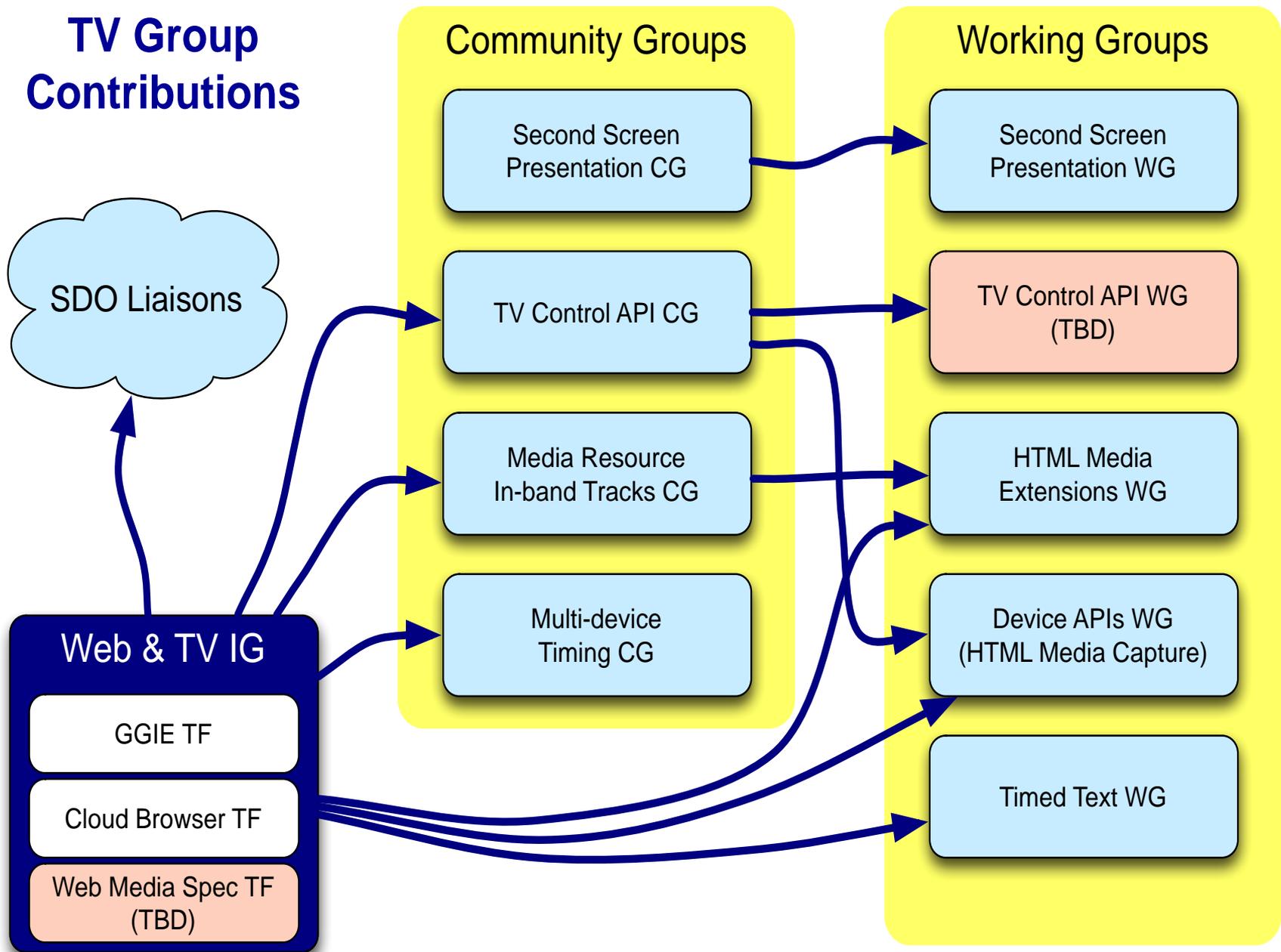
## Communication-related metadata

- Protocols and ports
- Data formats and encodings
- Multiplexing and buffering of data
- Efficient use of protocols



# Entertainment at W3C

# TV Group Contributions





## Cloud Browser TF

**A Task Force discussing requirements and architecture for thin clients such as STBs**

- Rich Web apps for legacy STBs
- Browser instances on the cloud
- Thin client to display and handle UI events



# Digital Publishing at W3C



# 20 years ago the Web created new experiences for publishing

- Reading
  - Hyperlinks / non-linear reading
  - But low-resolution screens at the time
- Authoring
  - Small chunks of text
- Publishing
  - Global distribution
  - Anyone could publish / low barriers
  - New advertising opportunities (search engines, pop-ups)
  - But impoverished style, layout of early Web no match for print





# But as opposed to other industries, here Publishing = Web

- Web is “intimately” tied to intrinsic purpose of publishing
  - Web impact on automotive, government, health care, etc. is secondary to their intrinsic purposes.
- Publishing industry has leveraged Web for 20 years
  - Parts of industry have been early adopters
  - Ebooks picking up the technology today (e.g., via EPUB)
  - Tomorrow they will be fully part of the Web





# What do publishers need from the Web?

- Match current publishing practices
- Leverage value-add of the Web
- Support diverse business and distribution models
- Satisfy diverse consumer behaviors





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