New Trends of Next Generation Web

Kangchan Lee, Ph.D
ETRI & W3C Korea Office

(chan@etri.re.kr, chan@w3.org)

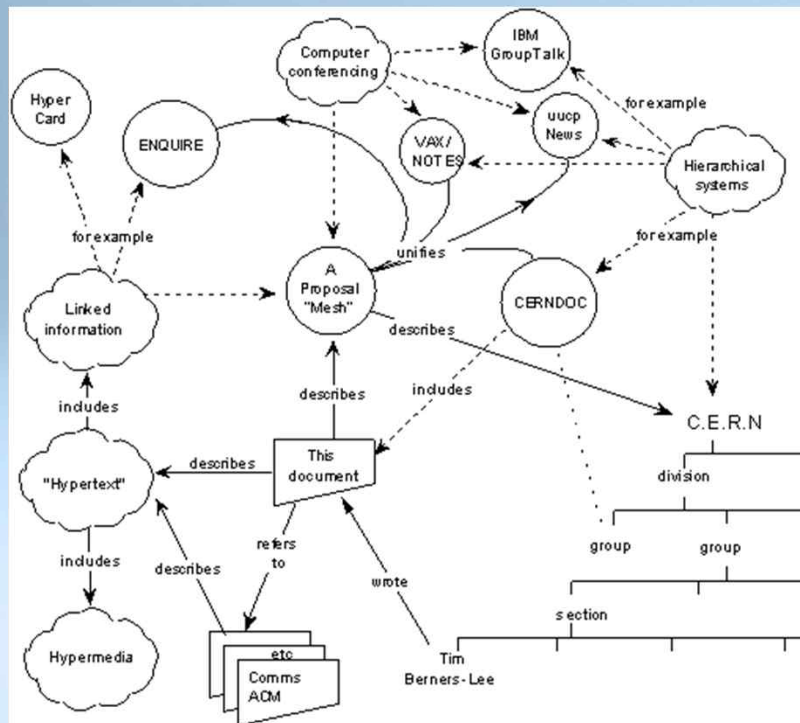Twitter : Kangchan

Development of Web Technology

quickening period

Spreading Period

Revolution Period

Before W3c

Wireless Internet

Ubiquitous Web
Semantic Web
Mobile Web

2010

MWI
UWS

2005

Web 2.0 ?

SOAP
WSDL
UDDI

2004

2002

FireFox
RDF/OWL

HTTP 1.0
(RFC1945)

WAP 1.0

2000

1999

WAP 2.0

MOSAIC

1998

1996 1997

HTTP 1.1
(RFC2616)

1989 1993 1994

IE4

XML

WWW

W3C

1989: The Web is born.

"Information Management:
A Proposal"
By Tim Berners-Lee, March 1989

HTML, URI, HTTP

http://www.w3.org/History/1989/proposal.html

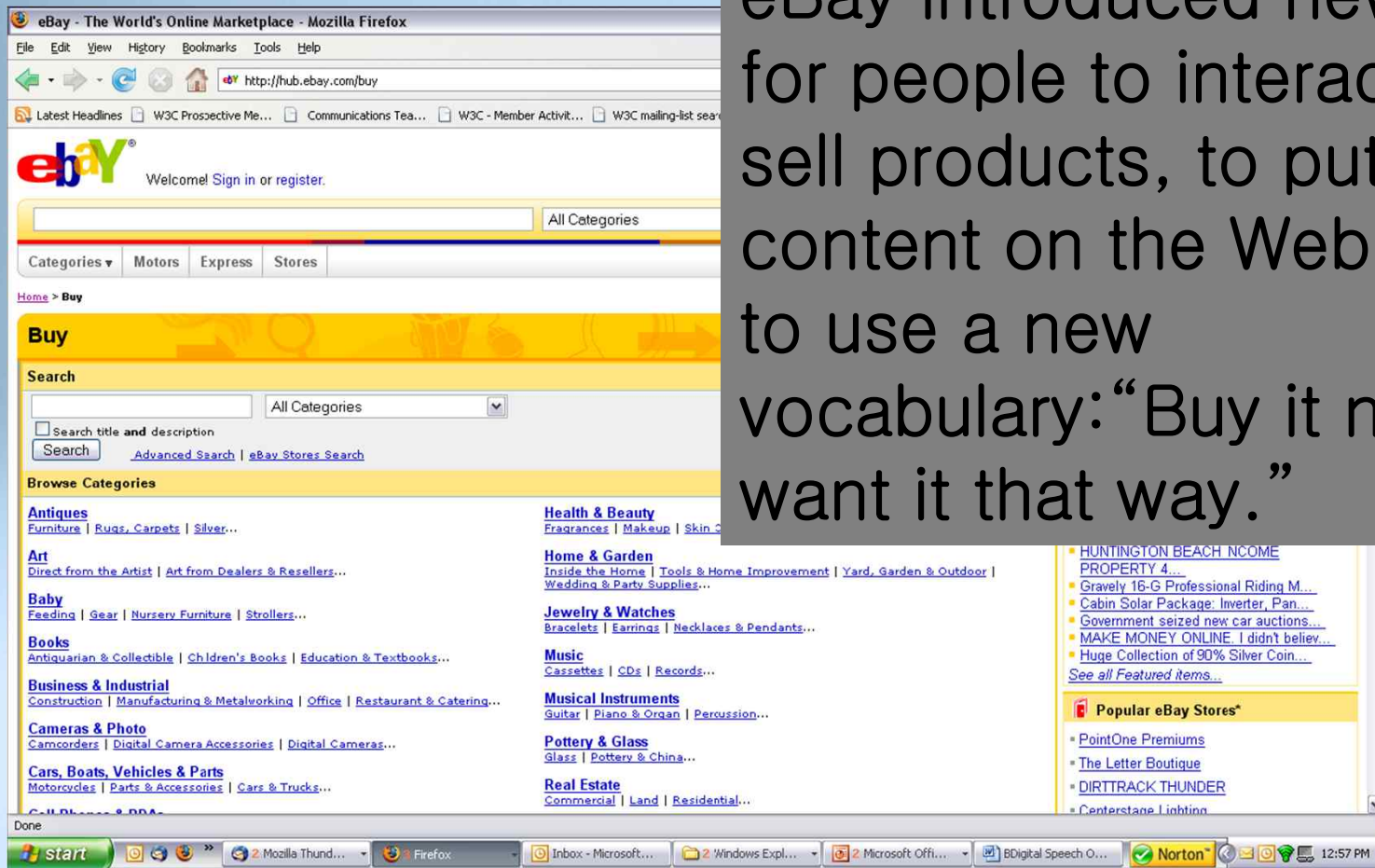# 1993: Mosaic Web Browser
1994: Yahoo! directory

Popular,
graphical
user agent
and
early search
capability
for "surfing"
the Web

1995: eBay Shopping: C2C, B2C, B2B

eBay introduced new ways for people to interact, to sell products, to put content on the Web, and to use a new vocabulary: "Buy it now." "I want it that way."

1998: Google
Search and advertising

Google's innovations with algorithms led to…
• Better Web Search
• New ways of doing business
• New advertising revenue models
• New markets

2001: Wikipedia:
Now: Active Web 2.0 community
75K contributors, 700M visitors/yr

2005: Sharing peer-produced video

Uses the Web as a global collaborative medium through sharing of video clips

April 2008

~80 million videos

~4 million user channels

Mash-up

http://www.programmableweb.com/

Social networking

Mobile Web

애플아이폰OS

구글안드로이드

MS윈도모바일

Windows Mobile

모바일 플랫폼 SW

symbian OS

LiMo Foundation

노키아 심비안

리모(리눅스모바일)

RIM

palm webOS

SAMSUNG

춘추 전국시대

BlackBerry

bada

블랙베리 림

팜 웹OS

삼성 바다

Web is Platform for Innovation

Tim Berners-Lee, September 2008

"The point about the Web is it's a platform. It should be, for the next generation, for the people who are students now, for people who are children now, they should find that the Web is a canvas that they can draw wonderful things on."

NEW IT Paradigm Shift

Value of Online Computing

Everything is connected !!!

World Wide Web = World Wide Computing

Make it possible everything as-a-service !!!

Ubiquitous Environments

device, whichever you used !!!

101011
Code

App Server

Mobile

Cloud Computing

Database

PC

Kitchen Sink

Cloud Computing
everything and the kitchen sink
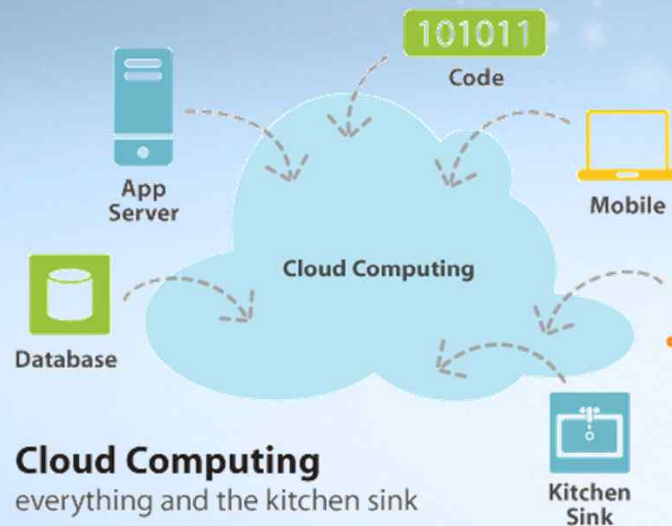
Voice WebCGM PICS HTMLTidy Databinding WebOntology
HTML CompoundDocumentFormats SPARQL WAI Web APIs
Libwww PatentPolicy OWL TimedText XMLEncryption Multimodal
XML RichWebClients XMLProcessing DeviceIndependence
URI/URL DOM HTTP Accessibility RDF
WebApplicationFormats XMLBase Jigsaw XLink I18N P3P
QualityAssurance XMLKeyManagement UbiquitousWeb InkML
Incubator XPath WebServices XForms CSS SOAP Mobile
SMIL Rules SVG Amaya SemanticWeb MathML

Development of Web Technology ('89 → '07)

HTML

HTTP

URL

Interaction	Mobile Web	Voice	Web Services	Semantic Web	Privacy, Security
XHTML	XHTML Basic	VoiceXML	SOAP	OWL	P3P
CSS SVG	Mobile SVG	SRGS	MTOM	SKOS	APPEL
SMIL CDF	SMIL Mobile	SSML	WSDL		XML Sig
XForms	XForms Basic	CCXML	WS-CDL		XML Enc
MathML	CC/PP DD	EMMA	Addressing		XKMS
InkML					

Web Accessibility / Internationalization / Device Independence / Quality Assurance

XML, Namespaces, Schemas, XQuery/XPath, XSLT, DOM, XML Base, XPointer, RDF/XML, SPARQL

XML Infoset, RDF Graph

Web Architectural Principles

URI/IRI, HTTP

The Web Advancing to its Full Potential

Internet

초기의 웹

현재의 웹

W3C

"To lead the World Wide Web to its full potential by developing protocols and guidelines that ensure long-term growth for the Web"

Founded by Tim Berners-Lee

Develops open *Recommendations* (Web Standards)

Engages in education, outreach, develops guidelines···

A neutral forum for building consensus around Web standards

http://www.w3.org/

W3C Recommendations

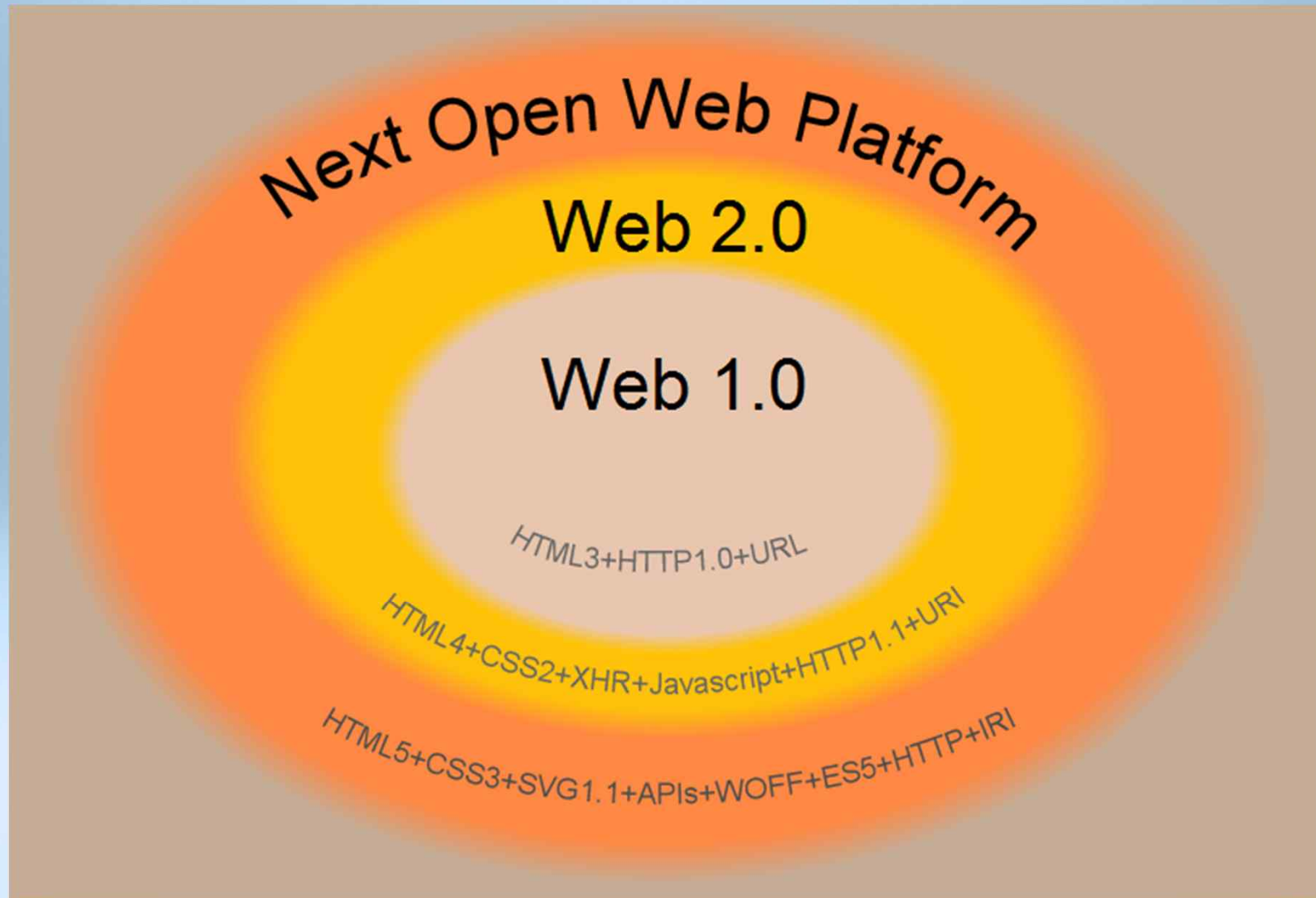| 1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
PNG	HTML 3.2	XML 1.0	CSS 1	XHTML 1.0	MathML2	XML Sig.	DOM-Level-2-HTML	CC/PP	RRSHB	XForms 1.0 (2nd)	XPath 2.0	SPARQL Language	XML Base (2nd)	WebCGM 2.1
CSS 1	HTML 4.0	MathML 1.0	Namespaces	ATAG 1.0	Canonical XML	P3P 1.0	SVG 1.1	DOM 3 Validation	SOAP MTOM	WSA Core	XQuery 1.0	SPARQL Protocol	EMMA	XML Entity Names
		HTML 4.0	WebCGM	XML 1.0	Schema Primer	XML Canonicalization	SVG Mobile	Infoset (2nd)	XOP	WSA SOAP Binding	XQuery Data Model	SPARQL Return Format	SML	XLink 1.1
		SMIL 1.0	RDF (Old Version)	DOM 2 Core	Schema Struct.	XHTML 1.0	XPTR Element	Namespaces 1.1	Char Model	Namespaces (2nd.)	Query Formal Semantic	CSS 1	SML-IF	XProc
		DOM 1	WCAG 1.0	DOM 2 Events	Schema Types	XPath Filter	XPTR Framewk.	XML 1.0 (3rd)	XKMS	Namespaces 1.1 (2nd.)	XQuery Functs. and Ops	Canonical XML 1.1	SKOS Reference	
			Style Sheets PI	DOM 2 Style	Ruby	Decrypt Transform	XPTR Xmlns	XML 1.1	XKMS Bindings	XML 1.0 (4th)	XQuery Serialization	XML Sig. (2nd.)	POWDER Grouping	
			MathML 1.01	DOM 2 Traversal	XHTML 1.1	UAAG1.0	SOAP Adjuncts	OWL Guide	QA Framework	XML 1.1 (2nd.)	XQueryX	MobiWeb BP	POWDER Resources	
			XPath 1.0	DOM 2 Views	XLink 1.0		SOAP Framewk.	OWL Overview	xml:id	XHTML-Print	XSLT 2.0	XHTML Basic 1.1	POWDER Semantics	
			XSLT 1.0	XHTML Basic	XML Base		SOAP Primer	OWL Reference	SMIL 2.1	XInclude (2nd)	WebCGM 2.0	PLS	XForms 1.1	
			HTML 4.01		SMIL 2.0		SOAP Tests	OWL Semantics		XSL 1.1	ITS	RDFa	OWL 2 Conformance	
					SMIL Animation		XForms 1.0	OWL Tests			SISR	XML 1.0 (5th)	OWL 2 Direct Sem.	
					SVG 1.0		XML Events	OWL Use Cases			SOAP Adjuncts (2nd)	SMIL 3.0	OWL 2 Mapping to RDF	
					XSL 1.0		MathML 2.0	RDF Concepts			SOAP Framewk. (2nd)	DDR API	OWL 2 New Features	
					Infoset		PNG (2nd)	RDF Primer			SOAP Primer (2nd)	mobileOK tests	OWL 2 OWL/XML	
					WebCGM			RDF Schema			SOAP Tests (2nd)	WCAG 2.0	OWL 2 Overview	
								RDF Semantics			VoiceXML 2.1	Element Traversal	OWL 2 Primer	
								RDF Test Cases			WSDL 2.0 Adjuncts	SVG Tiny 1.2	OWL 2 Profiles	
								RDF/XML			WSDL 2.0 Core		OWL 2 Quick Ref.	
								Speech Recognition			WSDL 2.0 Primer		OWL 2 RDF-Based Sem	
								VoiceXML 2.0			SAWSDL		OWL 2 Syntax	
								DOM 3 Core			WSA Metadata		RDF Plain Literal	
								DOM 3 L & S			WSP 1.5 Attachment		REC-DSig-label	
								Speech Synthesis			WSP 1.5 Framework		REC-PICS-labels	
								Schema Primer (2nd)			GRDDL		REC-PICS-services	
								Schema Struct. (2nd)			GRDDL Tests		REC-PICSRules	
								Schema Types (2nd)			XForms 1.0 (3rd)		Namespaces (3rd.)	
								WebArch						
								XInclude						

Date: 11–May–2010

The Buzz

Next Open Web Platform

Web 2.0

Web 1.0

HTML3+HTTP1.0+URL

HTML4+CSS2+XHR+Javascript+HTTP1.1+URI

HTML5+CSS3+SVG1.1+APIs+WOFF+ES5+HTTP+IRI

Web 1.0: Browsing

URLS + HTTP + HTML

Passive experience; no interaction

Limited bandwidth

Few devices (no mobile)

Web 2.0: Interaction

Same architecture + CSS + Javascript

People (user-generated content)

Bandwidth (video, ...)

Explosion of devices (mobile web, ...)

Beginnings of data (mashups)

Expanding Platform I: Rich, Mobile Web

We are standardizing the next generation

Key progress on new standards in:

Web Applications: Video, Style, Graphics, Fonts, APIs, …

Web for All: Accessibility, Internationalization, …

Continuing and growing progress in:

Web of Data: RDFa, Rules, …

Web of Devices: Mobile Web, Geolocation, Smart Devices, …

Some of this support in Web Applications

Expanding Platform II:
Data, Devices Everywhere
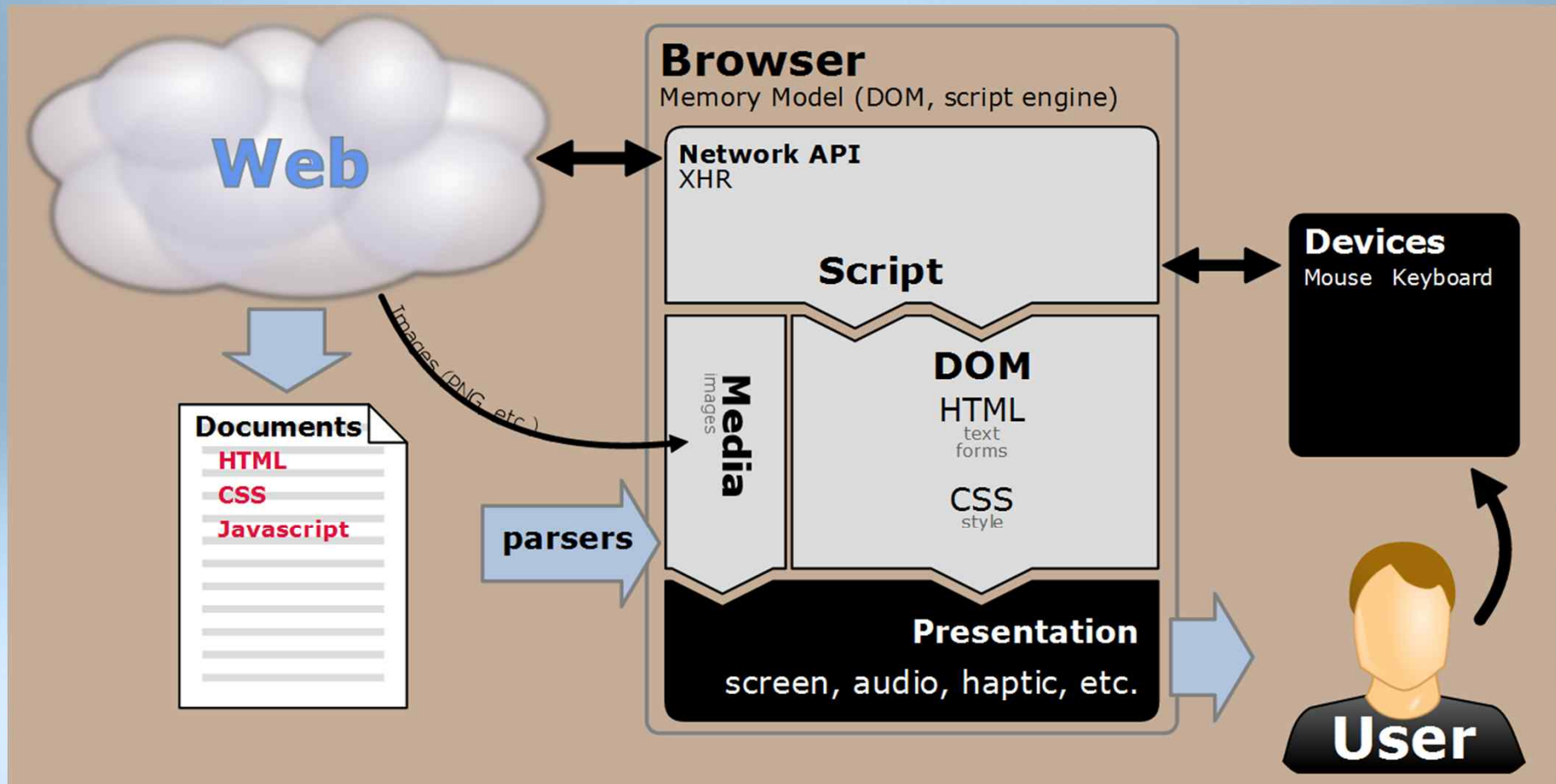
Web of Data

Social Web

Cloud computing

More Web services

Sensors, gadgets and all of that

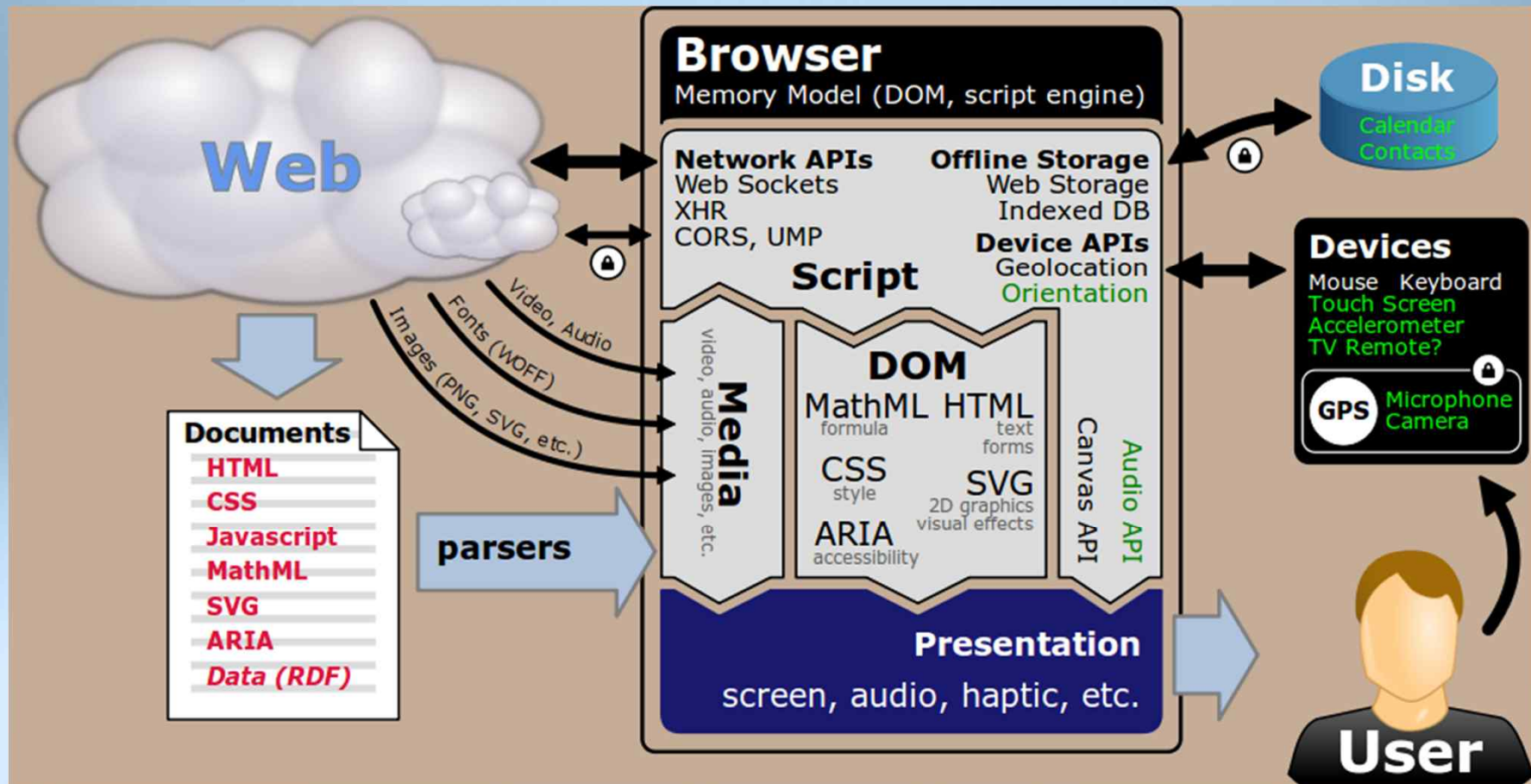TV on the Web

A critical infrastructure
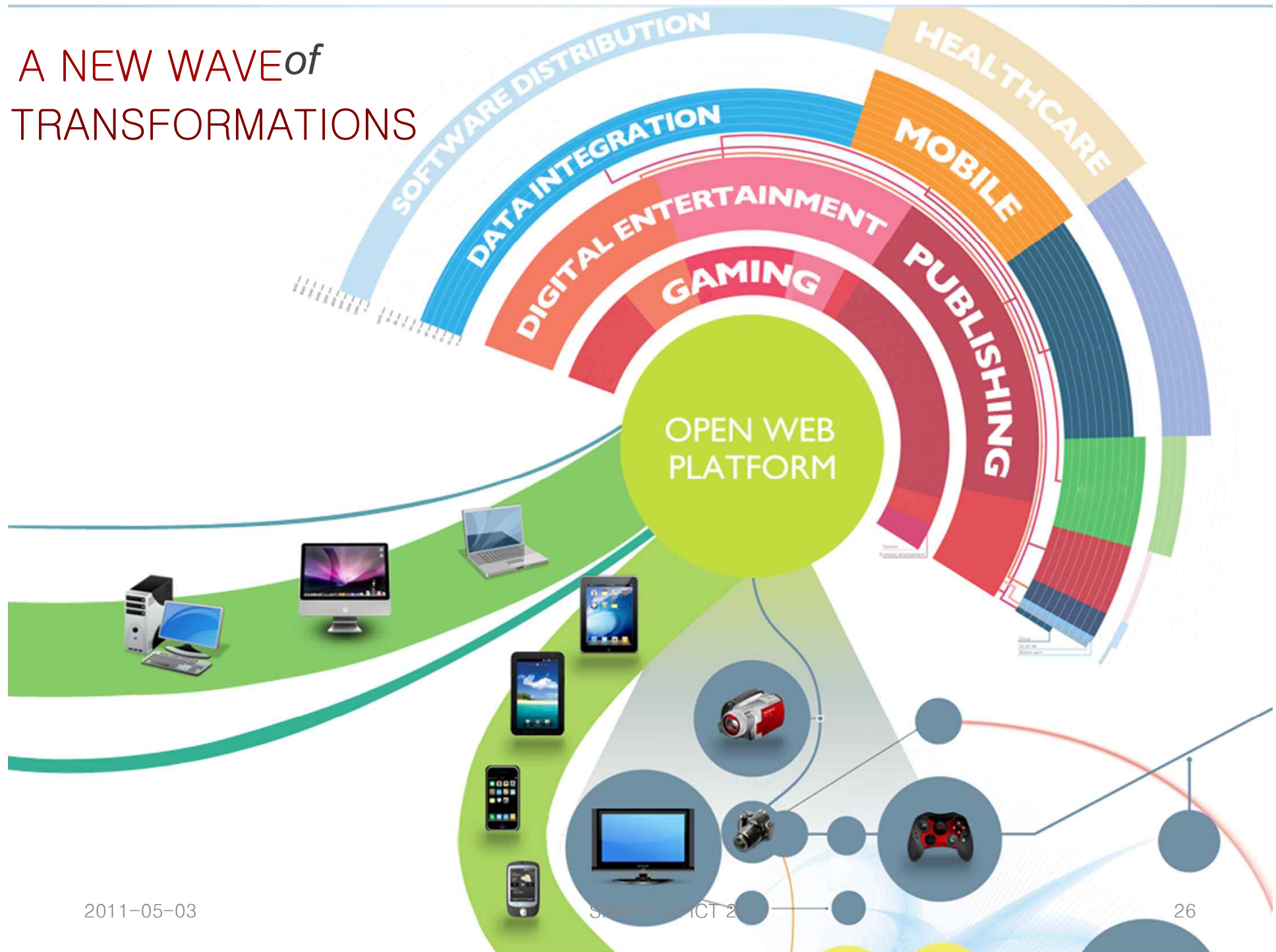
The Web Client Platform, 2001

Web Application Platform

Text	Hypertext Markup Language (HTML)
Forms	HTML
Style	Cascading Style Sheets (CSS)
Fonts	Web Open Font Format (WOFF)
Images, Videos	HTML
Protocols	Hypertext Transfer Protocol (HTTP), Web Sockets
Dynamics	JavaScript (ES), Web Application Programming Interfaces (Web APIs)
2D Graphics	Scalable Vector Graphics (SVG), 2D Canvas API
3D Graphics	WebGL Canvas API
Offline access	Web APIs: Web Storage, IndexedDB, File API
Device access	Web APIs: Geolocation, Orientation, Multi-touch, etc.
Data	RDFa, Microdata
...	

The Web Client Platform, 2011

A NEW WAVE *of* TRANSFORMATIONS

OPEN WEB PLATFORM

SOFTWARE DISTRIBUTION

DATA INTEGRATION

DIGITAL ENTERTAINMENT

GAMING

PUBLISHING

MOBILE

HEALTHCARE

TELEVISION

Goodbye TV, hello multi-platform multi-media delivery and interaction.

MOBILE

The Open Web Platform is the new mobile operating system.

GAMING

The gaming industry seeks full feature app development platform for distributed and social games.

PUBLISHING

The Web is a full-featured, multimedia publishing ecosystem.

GOVERNMENT DATA

The Web is increasing government transparency, efficiency, and lowering costs.

DEVICES

The Web is everywhere.

SOCIAL NETWORKING

SECURITY AND PRIVACY

OPEN WEB PLATFORM

A platform for innovation, consolidation and cost efficiencies.

W3C is shaping the future of global business.

- Web pages are more beautiful, interactive, intelligent

- HTML5 provides cross-browser interoperability and all major browser vendors plan to support it

- Video a first-class citizen

- Simplified data integration

- Numerous devices

- Tools for social networking (privacy, security, identity)

The

OPEN WEB PLATFORM

Geeky but important

Widgets   Javascript API's

DOM   CSS HTML5

Web fonts   SVG

OWL   W3C   Mobile Applications

WOFF   MAKE   WAI-ARIA

SMIL   Geolocation API's
Semantic web

Question?

- W3C 대한민국 사무국
  - 이승윤 사무국장
    - syl@etri.re.kr, syl@w3.org
    - Twitter : @Seungyun
  - 이강찬 부국장
    - chan@etri.re.kr, chan@w3.org
    - Twitter : @Kangchan