مباحث ویژه پیرامون فضای سایبر

وب استراتژیک

و استراتژی وب

«مروری بر فرآیند تطور وب»

Strategic Web and Strategy of Web

A Review on the Process of Web Evolution

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دانشکده مهندسی برق و کامپیوتر
دانشگاه تهران

http://courses.fouladi.ir/cyber

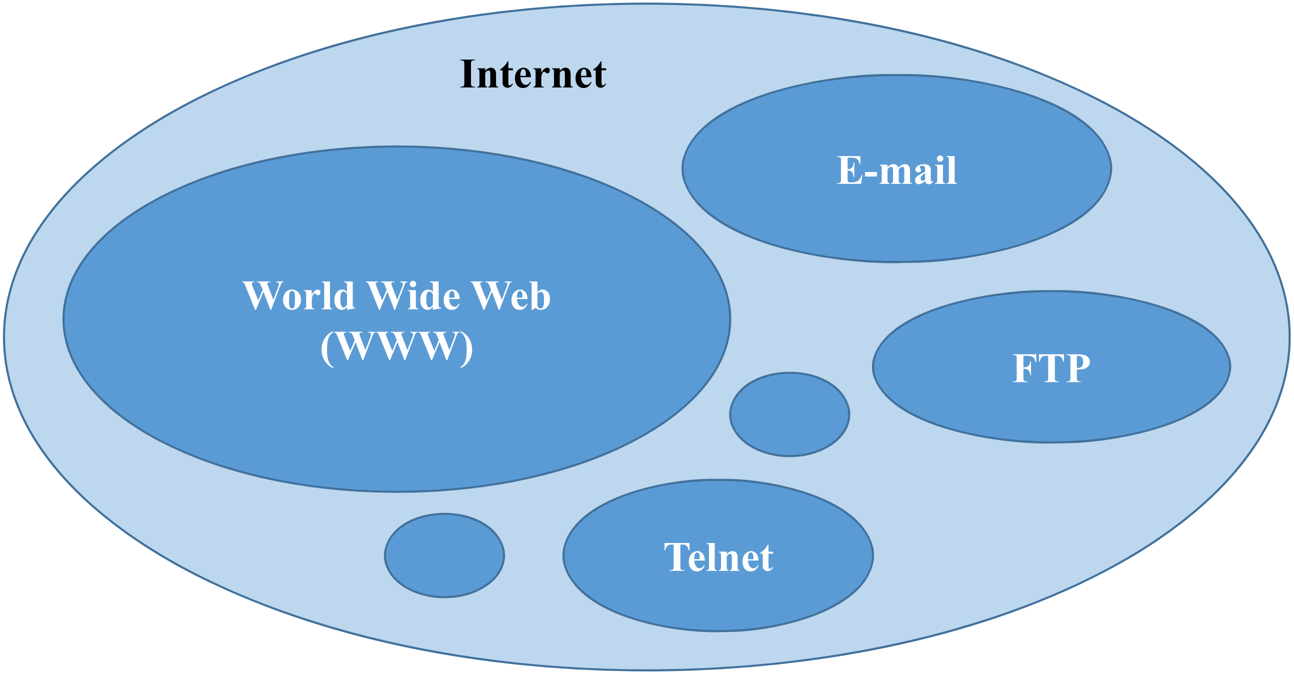
وب استراتژیک

۱

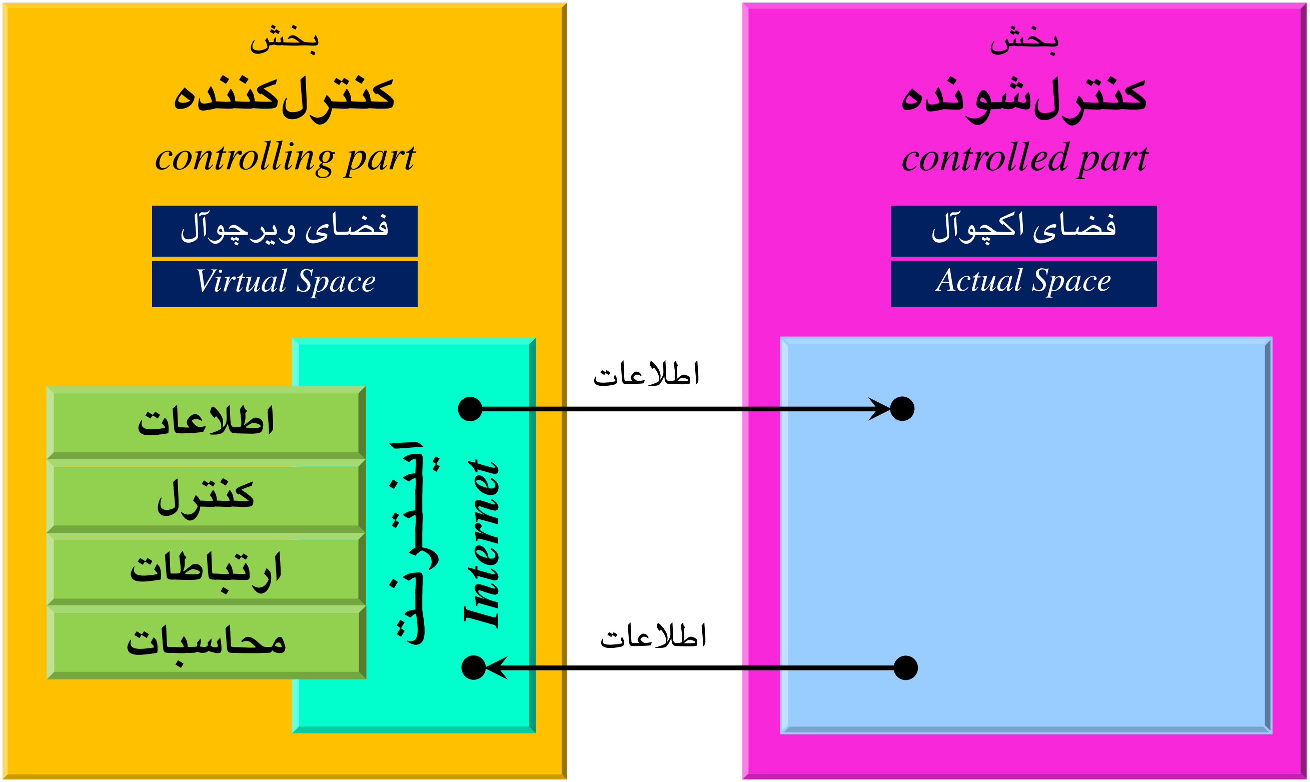
مقدمه

اینترنت و وب

وب پر استفاده‌ترین بخش از اینترنت


Internet
E-mail
World Wide Web (WWW)
FTP
Telnet

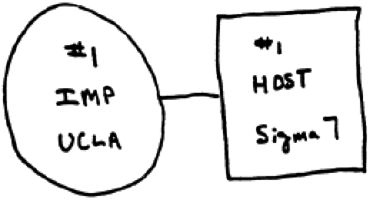
اینترنت به‌عنوان یک کاربرد



بخش
کنترل‌شونده
controlled part
فضای اکچوآل
Actual Space
بخش
کنترل‌کننده
controlling part
فضای ویرچوآل
Virtual Space
اطلاعات
کنترل
ارتباطات
محاسبات
اینترنت
Internet
اطلاعات
اطلاعات

تاریخچه‌ی اینترنت

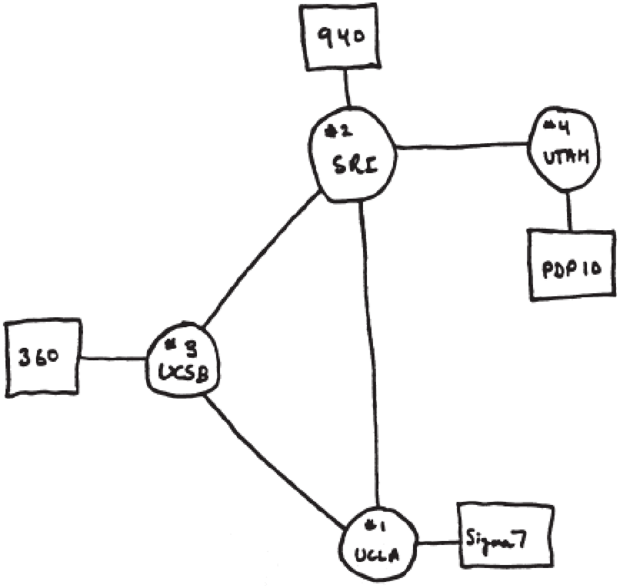
1960s-1970s	US Department of Defense network called ARPANET initial services: electronic mail, file transfer
late 1980s	opened to commercial interests
1989-1991	WWW created by Tim Berners-Lee
1994-1995	popular web browsers released: **Netscape** 1994, **IE** 1995
1995	Amazon.com opens
1996	Google!


#1
IMP
UCLA
#1
HOST
Sigma 7

THE ARPA NETWORK

SEPT 1969

1 NODE

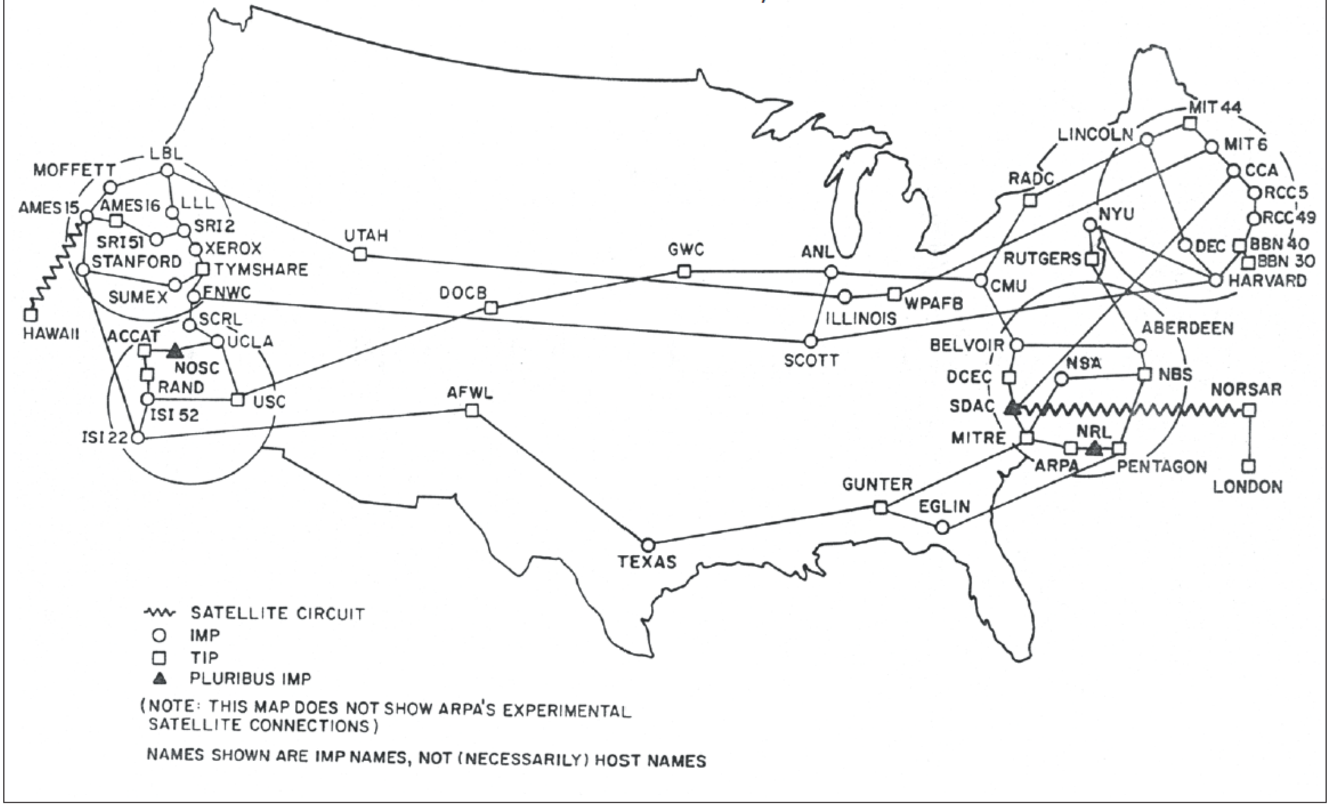

940
#2
SRI
#4
UTAH
PDP 10
360
#3
UCSB
#1
UCLA
Sigma 7

THE ARPA NETWORK

DEC 1969

4 NODES

ARPANET GEOGRAPHIC MAP, JUNE 1977


LBL
MOFFETT
AMES 15
AMES 16
LLL
SRI 51
SRI 2
XEROX
STANFORD
TYMSHARE
SUMEX
FNWC
HAWAII
SCRL
ACCAT
UCLA
NOSC
RAND
USC
ISI 52
ISI 22
UTAH
DOCB
GWC
ANL
ILLINOIS
WPAFB
SCOTT
AFWL
TEXAS
GUNTER
EGLIN
RADC
LINCOLN
MIT 44
MIT 6
CCA
RCC 5
RCC 49
NYU
DEC
BBN 40
BBN 30
RUTGERS
HARVARD
CMU
ABERDEEN
BELVOIR
NSA
DCEC
NBS
SDAC
NORSAR
MITRE
NRL
ARPA
PENTAGON
LONDON
SATELLITE CIRCUIT
IMP
TIP
PLURIBUS IMP
(NOTE: THIS MAP DOES NOT SHOW ARPA'S EXPERIMENTAL SATELLITE CONNECTIONS)
NAMES SHOWN ARE IMP NAMES, NOT (NECESSARILY) HOST NAMES

Source: Heart et al., *ARPANET Completion Report*, 1978. Scanned by Larry Press

نهادهای حاکم بر اینترنت

IETF

1986

نیروی ضربت مهندسی اینترنت

The Internet Engineering Task Force

http://www.ietf.org/

ICANN

1998

بنگاه اینترنت برای نام‌ها و شماره‌های منتسب

Internet Corporation for Assigned Names and Numbers

http://www.icann.org/

W3C® WORLD WIDE WEB consortium

1998

کنسرسیوم وب جهان گستر

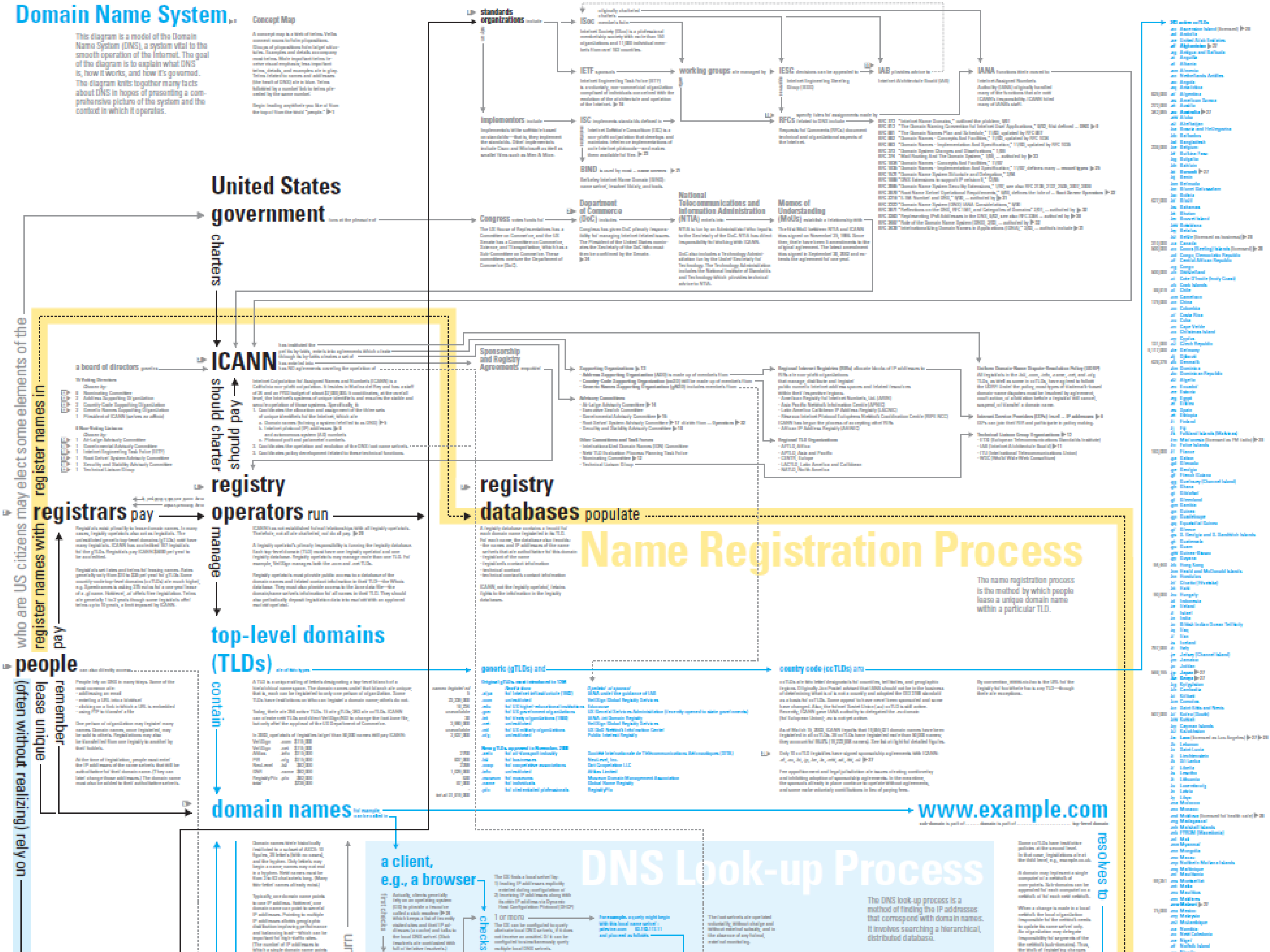
World Wide Web Consortium

http://www.w3c.org/

Domain Name System

Concept Map

This diagram is a model of the Domain Name System (DNS), a system vital to the smooth operation of the Internet. The goal of the diagram is to explain what DNS is, how it works, and how it's governed. The diagram knits together many facts about DNS in hopes of presenting a comprehensive picture of the system and the context in which it operates.



standards organizations

ISOC

IETF

working groups

IESG

IAB

IANA

implementors

ISC

BIND

RFCs

United States government

charters

Congress

Department of Commerce (DoC)

National Telecommunications and Information Administration (NTIA)

Memos of Understanding (MoUs)

ICANN

a board of directors

should charter

should pay

Sponsorship and Registry Agreements

who are US citizens may elect some elements of the

register names with registrars

register names in

registrars pay

registry operators run

manage

registry databases populate

Name Registration Process

The name registration process is the method by which people lease a unique domain name within a particular TLD.

people

pay

(often without realizing) rely on

lease unique

remember

top-level domains (TLDs)

contain

generic (gTLDs) and

country code (ccTLDs) are

domain names

www.example.com

resolves to

a client, e.g., a browser

first checks

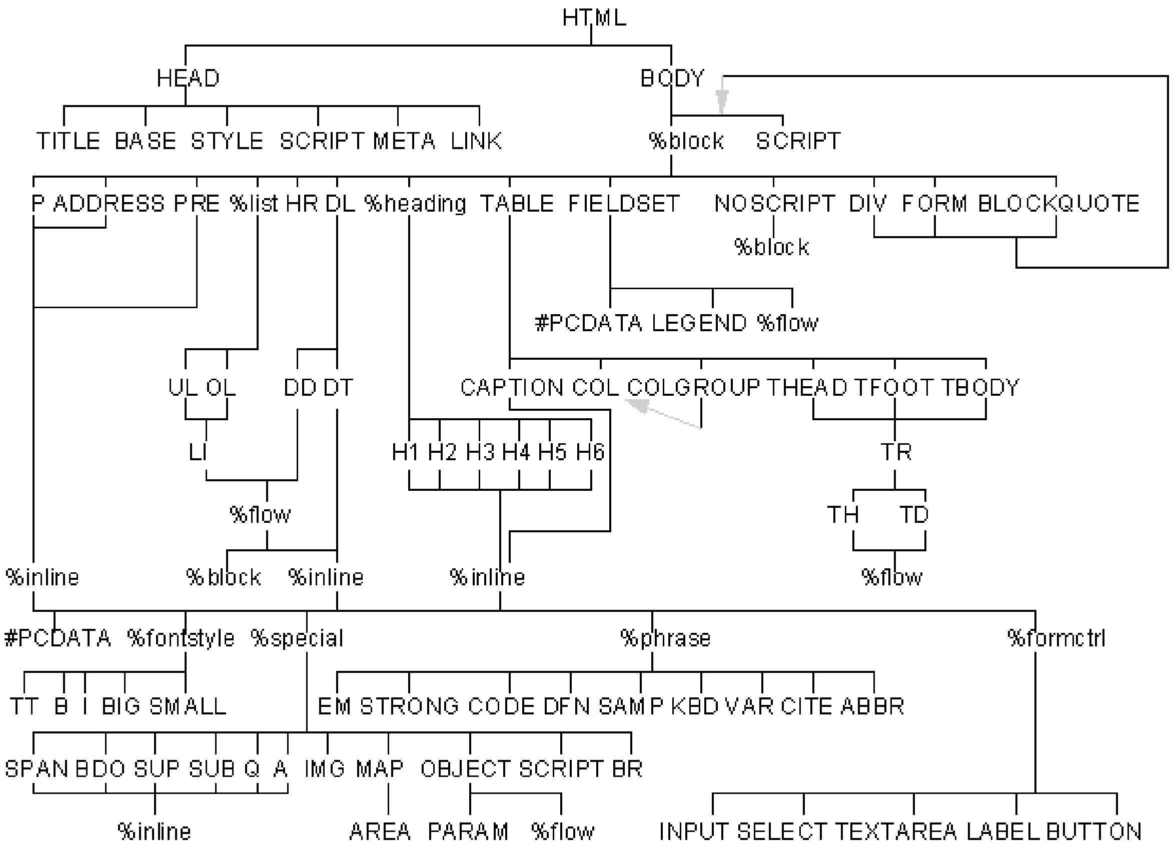
checks

1 or more

DNS Look-up Process

The DNS look-up process is a method of finding the IP addresses that correspond with domain names. It involves searching a hierarchical, distributed database.

زبان HTML



HTML

HEAD BODY

TITLE BASE STYLE SCRIPT META LINK %block SCRIPT

P ADDRESS PRE %list HR DL %heading TABLE FIELDSET NOSCRIPT DIV FORM BLOCKQUOTE

%block

#PCDATA LEGEND %flow

UL OL DD DT CAPTION COL COLGROUP THEAD TFOOT TBODY

LI H1 H2 H3 H4 H5 H6 TR

%flow TH TD

%inline %block %inline %inline %flow

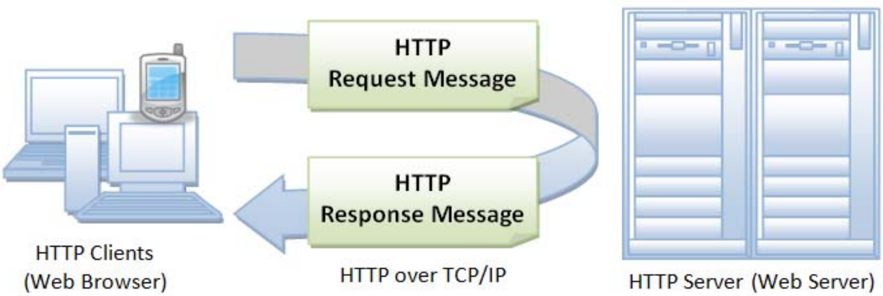
#PCDATA %fontstyle %special %phrase %formctrl

TT B I BIG SMALL EM STRONG CODE DFN SAMP KBD VAR CITE ABBR

SPAN BDO SUP SUB Q A IMG MAP OBJECT SCRIPT BR

%inline AREA PARAM %flow INPUT SELECT TEXTAREA LABEL BUTTON

پروتکل HTTP


HTTP
Request Message
HTTP
Response Message
HTTP Clients
(Web Browser)
HTTP over TCP/IP
HTTP Server (Web Server)

HTTP Methods

GET → Request for a web page or an object from server

PUT → For sending a document to the server

POST → For sending data or information about client to the server

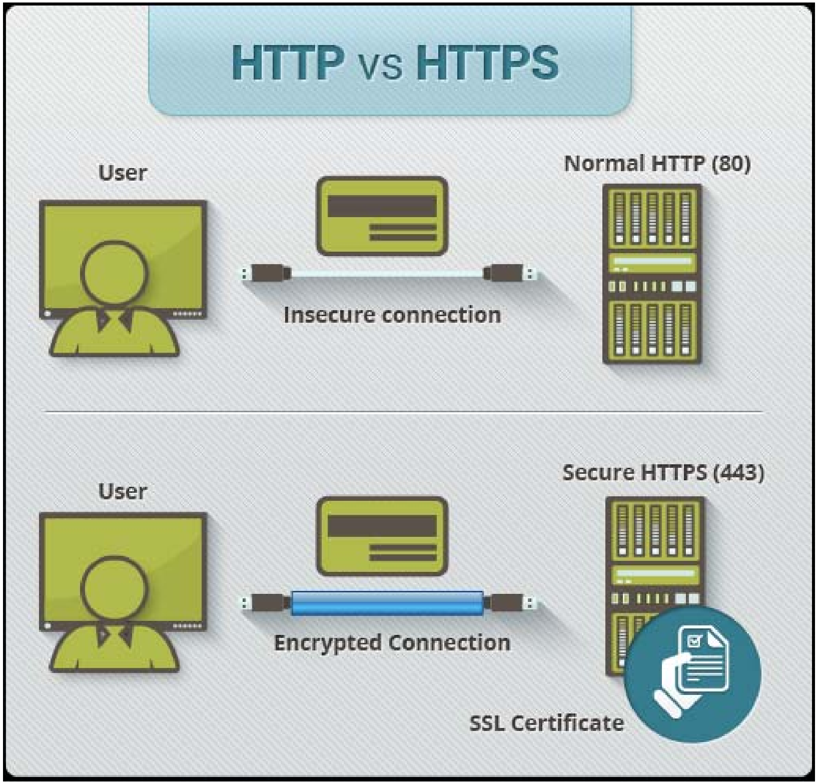
DELETE → Request to Delete an object on the server

HEAD → Request for information about a web page or a document

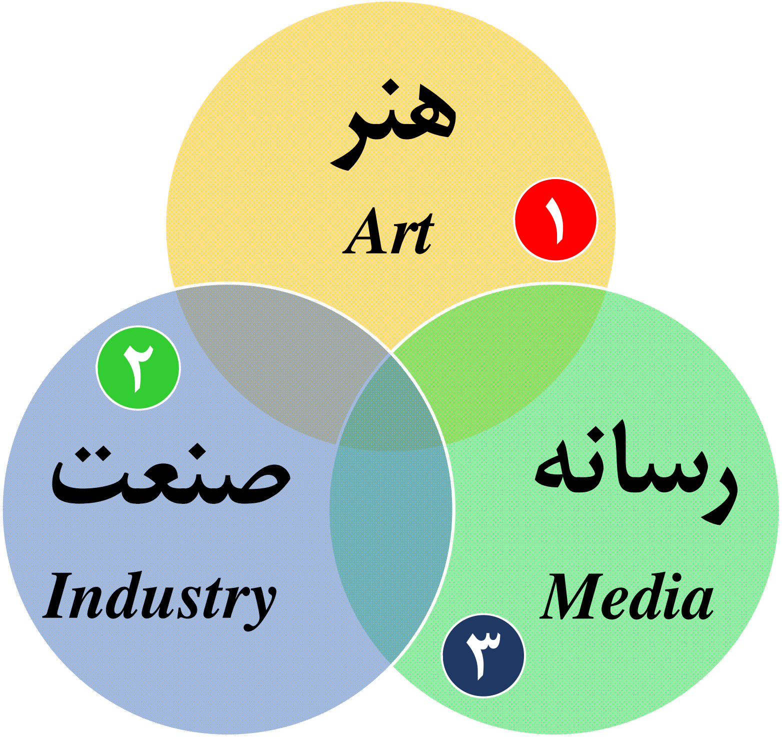
TRACE → Used to trace the proxies and tunnels in the path from client to server

OPTION → Used to determine server's capabilities

پروتکل HTTPS


HTTP vs HTTPS
User
Normal HTTP (80)
Insecure connection
User
Secure HTTPS (443)
Encrypted Connection
SSL Certificate

وب: هنر، صنعت یا رسانه؟


هنر
Art
۱
صنعت
Industry
۲
رسانه
Media
۳

کاظم فولادی

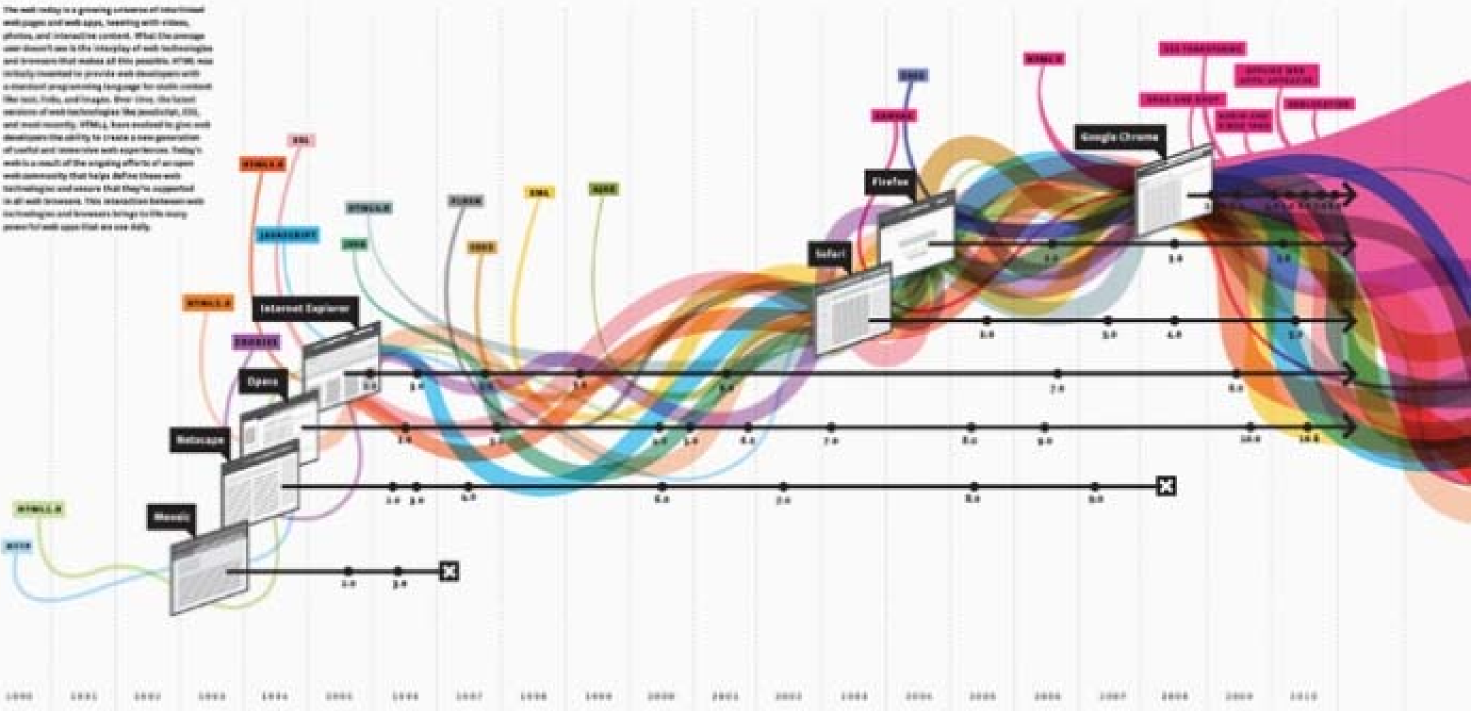
وب استراتژیک

۲

تطور وب

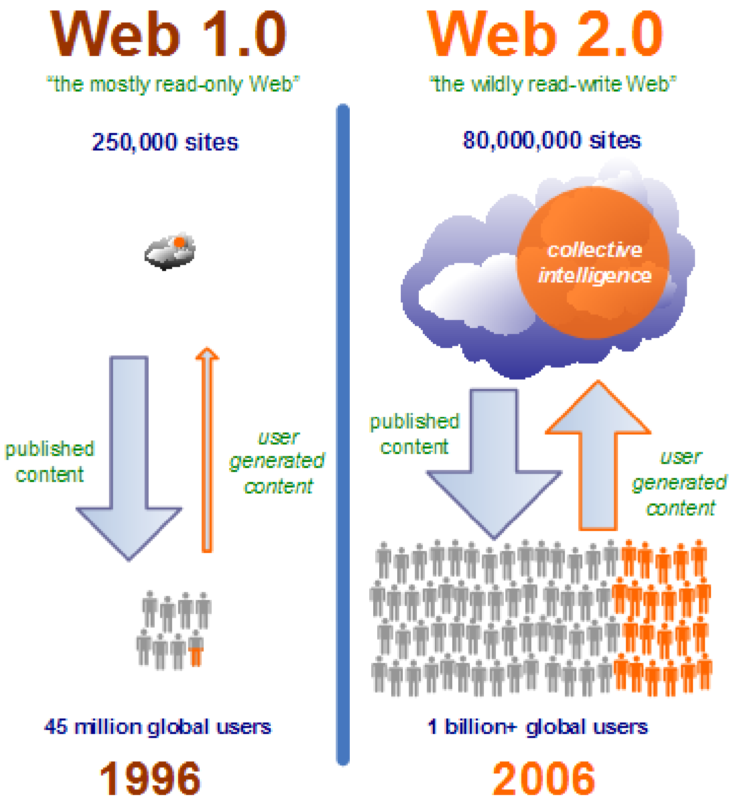
The Evolution of the Web

The web today is a growing universe of interlinked web pages and web apps, teeming with videos, photos, and interactive content. What the average user doesn't see is the interplay of web technologies and browsers that makes all this possible. HTML was initially invented to provide web developers with a standard programming language for static content like text, links, and images. Over time, the latest versions of web technologies like JavaScript, CSS, and most recently, HTML5, have evolved to give web developers the ability to create a new generation of useful and immersive web experiences. Today's web is a result of the ongoing efforts of an open web community that helps define these web technologies and ensure that they're supported in all web browsers. This interaction between web technologies and browsers brings to life many powerful web apps that we use daily.



تطور وب

انتقال از وب یک به وب دو



Web 1.0

"the mostly read-only Web"

250,000 sites

published content
user generated content

45 million global users

1996

Web 2.0

"the wildly read-write Web"

80,000,000 sites

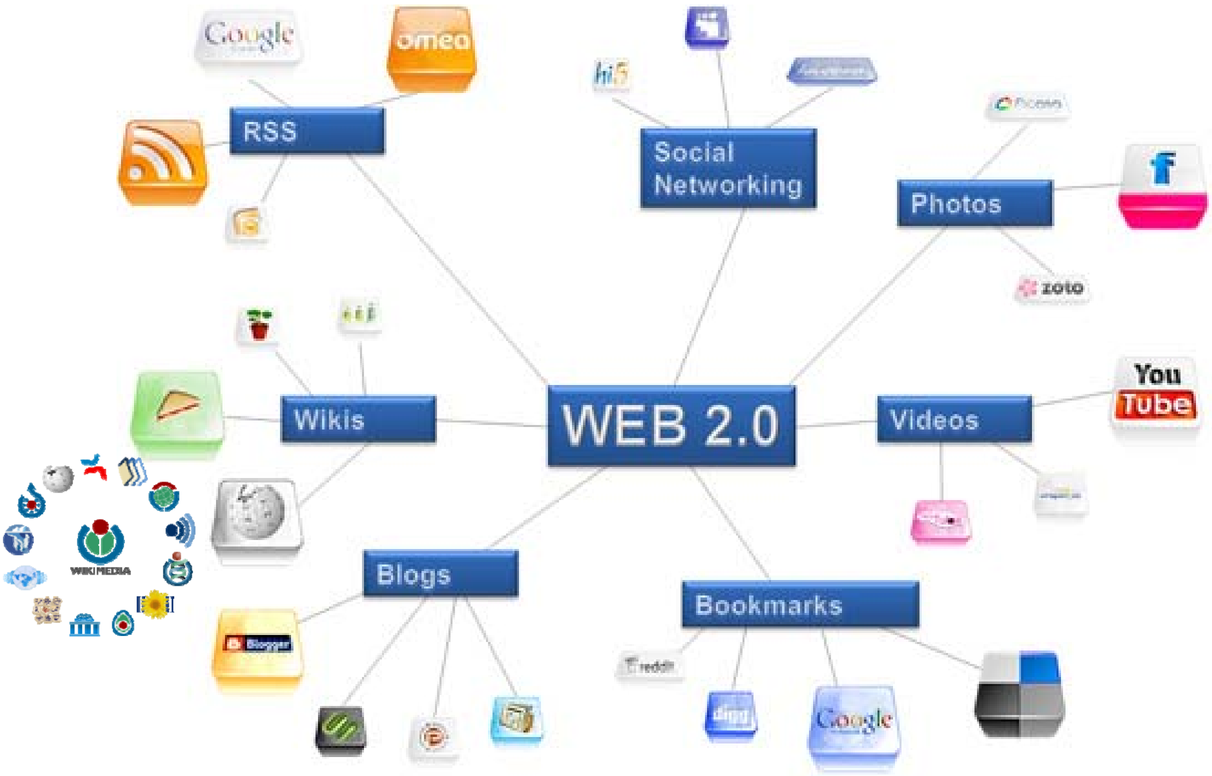
collective intelligence
published content
user generated content

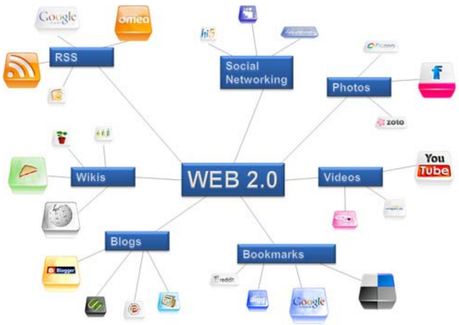
1 billion+ global users

2006

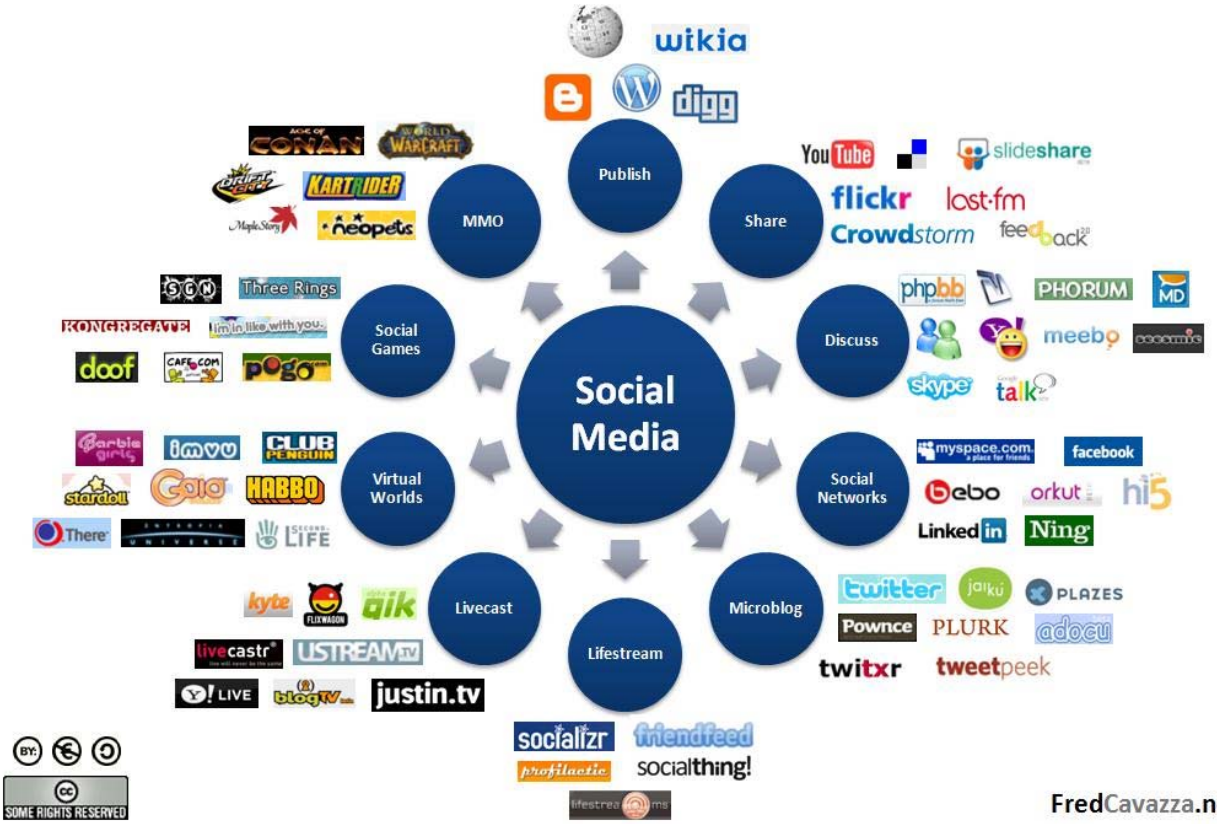
تطور وب

کاربردهای وب دو


WEB 2.0
RSS
Social Networking
Photos
Wikis
Videos
Blogs
Bookmarks
Google
omea
hi5
flickr
zoto
You Tube
WIKIMEDIA
Blogger
reddit
digg
Google


WEB 2.0
RSS
Social Networking
Photos
Videos
Bookmarks
Blogs
Wikis
Google
omea
hi5
You Tube
Google

Social Media Landscape



Social Media

Publish

Share

Discuss

Social Networks

Microblog

Lifestream

Livecast

Virtual Worlds

Social Games

MMO

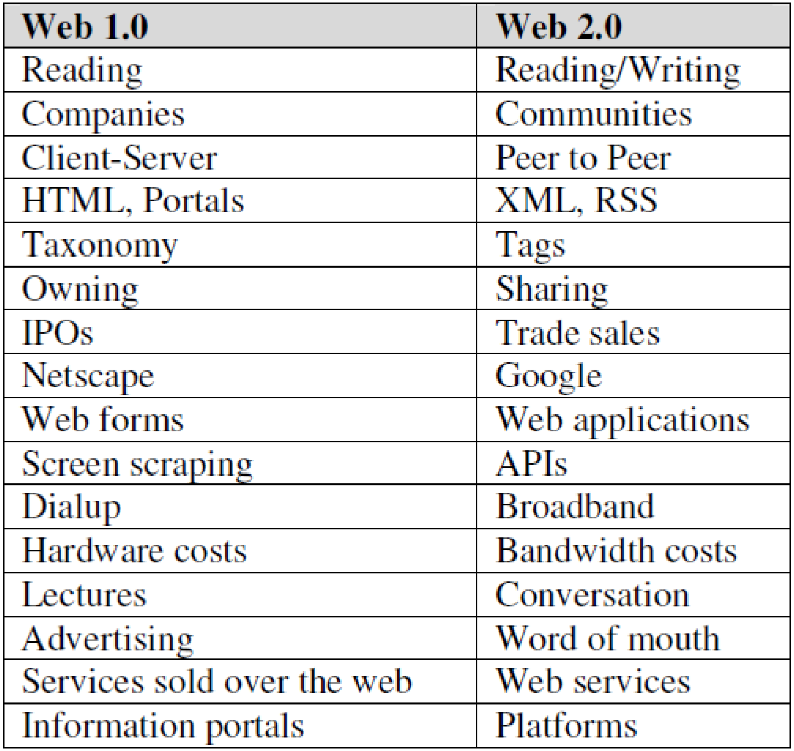
wikia
digg
YouTube
slideshare
flickr
last.fm
Crowdstorm
feedback
phpBB
PHORUM
MD
meebo
skype
talk
myspace.com a place for friends
facebook
bebo
orkut
hi5
LinkedIn
Ning
twitter
jaiku
PLAZES
Pownce
PLURK
adocu
twitxr
tweetpeek
socializr
friendfeed
profilactic
socialthing!
lifestreams
kyte
FLIXWAGON
qik
livecastr
USTREAM.TV
Y! LIVE
blogTV
justin.tv
Barbie girls
imvu
CLUB PENGUIN
stardoll
Gaia
HABBO
There
ENTROPIA UNIVERSE
SECOND LIFE
SGN
Three Rings
KONGREGATE
i'm in like with you
doof
CAFE.COM
pogo.com
AGE OF CONAN
WORLD OF WARCRAFT
DRIFT CITY
KARTRIDER
MapleStory
neopets

SOME RIGHTS RESERVED

FredCavazza.net

تطور وب

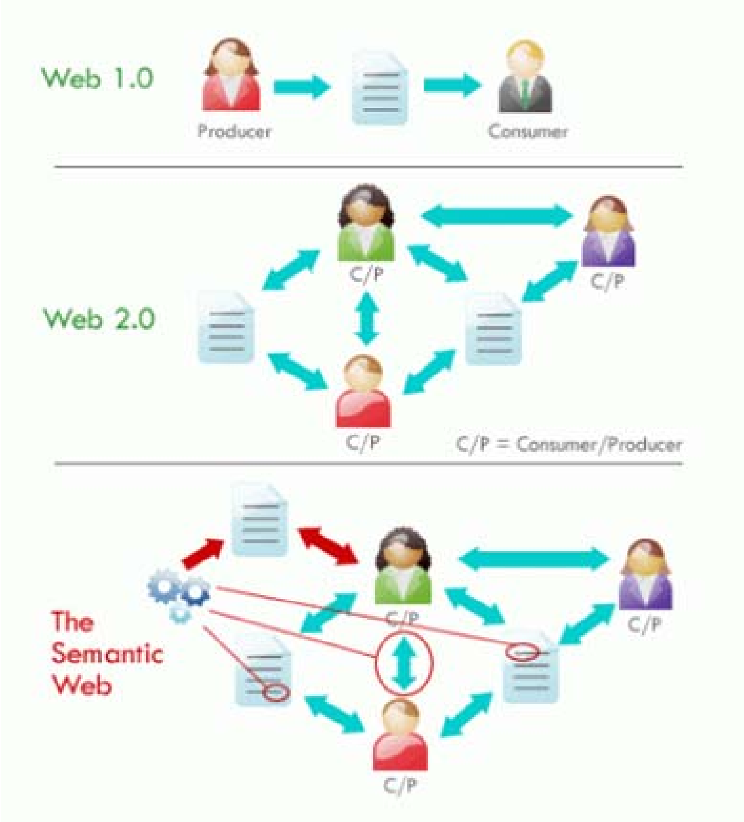
مقایسه‌ی وب یک با وب دو



Web 1.0	Web 2.0
Reading	Reading/Writing
Companies	Communities
Client-Server	Peer to Peer
HTML, Portals	XML, RSS
Taxonomy	Tags
Owning	Sharing
IPOs	Trade sales
Netscape	Google
Web forms	Web applications
Screen scraping	APIs
Dialup	Broadband
Hardware costs	Bandwidth costs
Lectures	Conversation
Advertising	Word of mouth
Services sold over the web	Web services
Information portals	Platforms

تطور وب

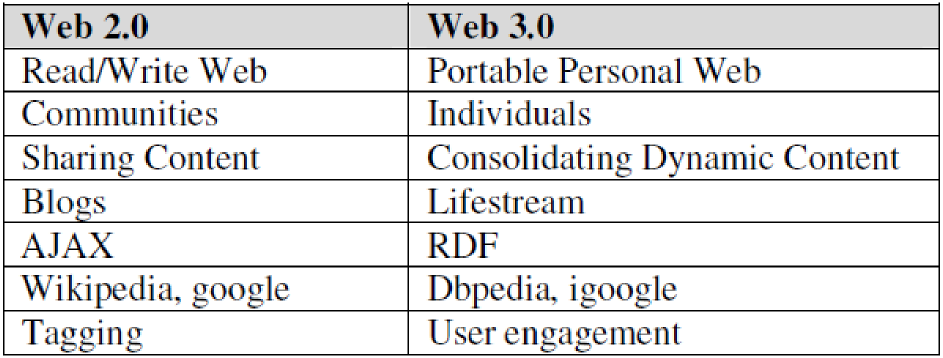
از وب یک تا وب معنایی


Web 1.0
Producer
Consumer
Web 2.0
C/P
C/P
C/P
C/P = Consumer/Producer
The Semantic Web
C/P
C/P
C/P

کاظم فولادی

تطور وب

مقایسه‌ی وب دو با وب سه



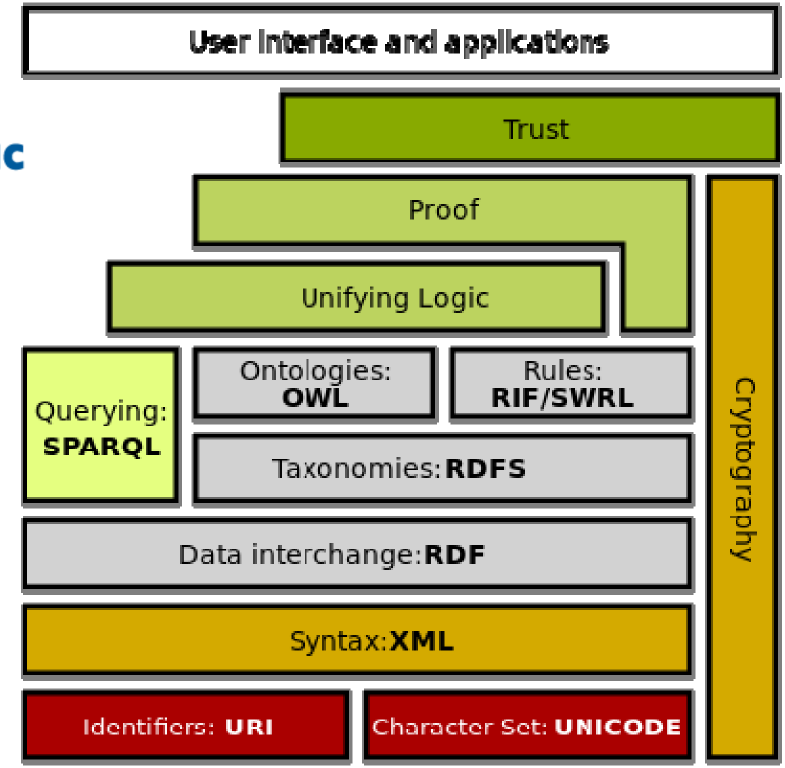
Web 2.0	**Web 3.0**
Read/Write Web	Portable Personal Web
Communities	Individuals
Sharing Content	Consolidating Dynamic Content
Blogs	Lifestream
AJAX	RDF
Wikipedia, google	Dbpedia, igoogle
Tagging	User engagement

تطور وب

ساختار پشته‌ی وب معنایی

SEMANTIC WEB STACK

Semantic Web



User Interface and applications

Trust

Proof

Unifying Logic

Querying: **SPARQL**

Ontologies: **OWL**

Rules: **RIF/SWRL**

Taxonomies: **RDFS**

Data interchange: **RDF**

Syntax: **XML**

Identifiers: **URI**

Character Set: **UNICODE**

Cryptography

WTF IS THE SEMANTIC WEB

AND WHY SHOULD WE CARE?

WTF IS THE SEMANTIC WEB?

The **WEB** is a system of interlinked hypertext documents accessed through the internet. Sir Timothy John Berners-Lee is credited with inventing the World Wide Web.

The **SEMANTIC WEB** is a group of methods and technologies that allows machines to understand the semantics of information on the World Wide Web.

WTF, WEB 2.0 vs WEB 3.0?

WEB 2.0

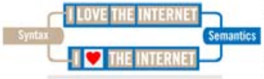
WEB 2.0 focused on communities, social networks, RSS feeds, Google and the immergence of user content.

WEB 3.0

WEB 3.0 focuses on the individual, user behavior, the portable personal web, consolidating dynamic content and the semantic web.

WTF IS SEMANTICS?

Semantics is related to syntax. In most languages syntax is how you say something, while semantics is the meaning behind what you have said. When substituting one part of the sentence with another word or symbol, the syntax of the sentence changes, while the semantics may remain the same.



While the syntax has changed, the semantics of the sentence had remained the same.

WTF DOES THIS HAVE TO DO WITH COMPUTERS?

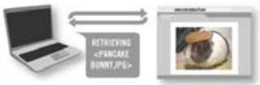
WEB 2.0: HTML

The Internet created a standard way for computers to talk to one another in order to exchange information and data.

However computers merely **mimic** information to one another creating a quick and easy way to view information.

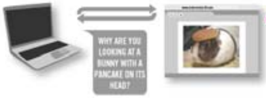
When you type a web address into your browser your computer connects with the website and **retrieves** the data on that website.

This document is written in a language called **HTML**. The **HTML** language defines a syntax that computers understand but not one that provides meaning.



HTML merely describes the document and the link between other documents, while the components of the Semantic Web can describe what the document is.

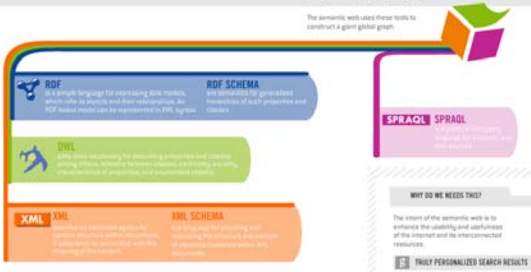
WEB 3.0: XHTML


WHY ARE YOU LOOKING AT A BUNNY WITH A PANCAKE ON ITS HEAD?

By rewriting the original **HTML** code with **Extensible HTML**, interspersed with **XML**, the website data has now become machine-readable. This enables content managers to add meaning to internet content.

COMPONENTS OF THE SEMANTIC WEB

The semantic web uses these tools to construct a giant global graph.



RDF
is a simple language for expressing data models, which refer to objects and their relationships. An RDF-based model can be represented in XML syntax.

RDF SCHEMA
are semantics for generalized hierarchies of such properties and classes.

OWL
adds more vocabulary for describing properties and classes: among others, relations between classes, cardinality, equality, characteristics of properties, and enumerated classes.

XML
provides an elemental syntax for content structure within documents, yet associates no semantics with the meaning of the content.

XML SCHEMA
is a language for providing and restricting the structure and content of elements contained within XML documents.

SPRAQL
is a protocol and query language for semantic web data sources.

WHY DO WE NEEDS THIS?

The intent of the semantic web is to enhance the usability and usefulness of the internet and its interconnected resources.

TRULY PERSONALIZED SEARCH RESULTS

Where can I get a burrito?

With an ever growing dependency on search engines the semantic web would enable faster and more comprehensive results tailored to your previous searches and personal interests.

24-HR CONNECTIVITY

Where is Sam right now?

The semantic web would allow for complete connectivity with people, places and things. The integration of data from all corners of the web would turn your computer from a simple tool to an automated think tank.

PROJECTS BASED ON THE SEMANTIC WEB

DBpedia
An effort to publish structured data extracted from Wikipedia: the data is published in RDF and made available on the web for use under the GNU Free Documentation License.

Friend of a Friend
A machine readable ontology describing persons, their usual activities and their relations to other people and events. FOAF allows groups of people to connect without the need for a centralized database.

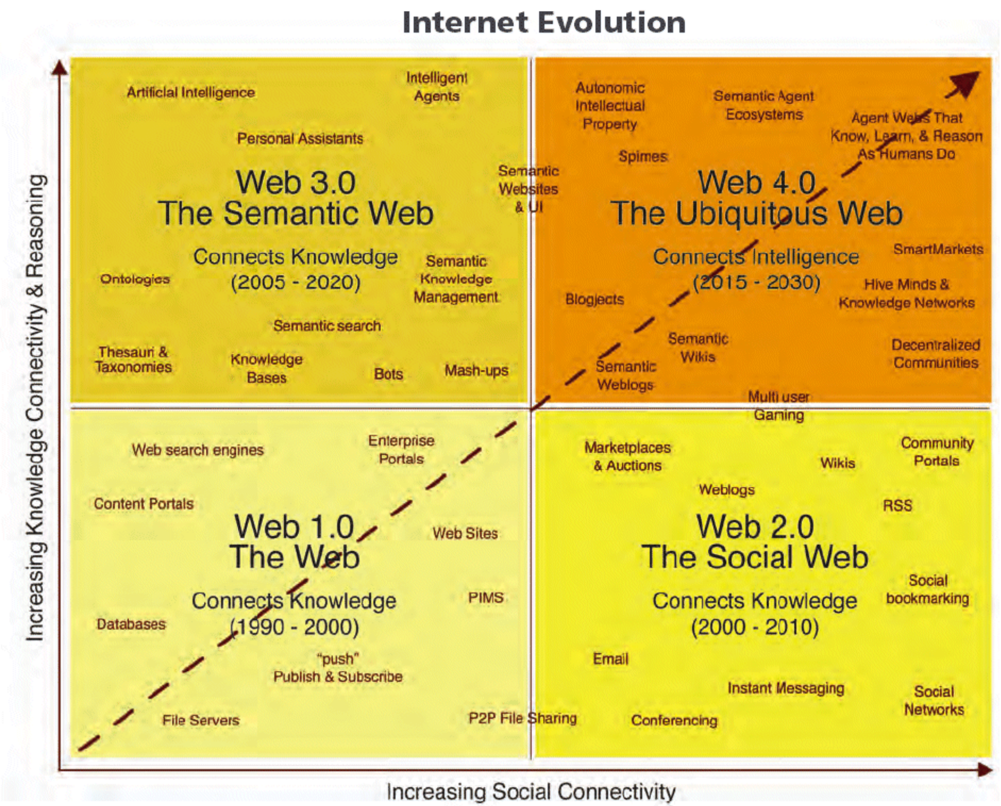
GoodRelations
A popular vocabulary for describing product information, prices, payment options, etc. It also clearly delineates the trends in supply and demand. It is currently being used by Best Buy, Yahoo and O'Reilly Media.

SIOC
It provides a vocabulary of terms and relationships that model web data spaces. Examples of such data spaces are: discussion forums, weblogs, blogrolls, feed subscriptions, mailing lists, shared bookmarks, and image galleries.

SOURCES: W3.ORG | SEMANTICWEB.COM | SEMANTICWEB.ORG | INFOMESG.NET | SCIENTIFIC AMERICAN

تطور وب

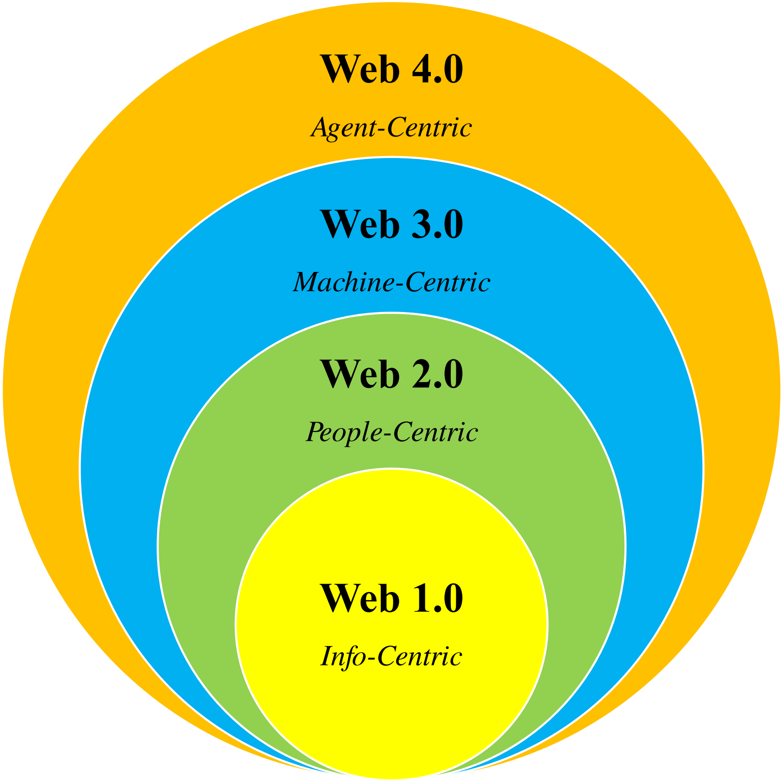
حرکت به سوی وب چهار


Internet Evolution
Artificial Intelligence
Intelligent Agents
Personal Assistants
Web 3.0
The Semantic Web
Connects Knowledge
(2005 - 2020)
Semantic Websites & UI
Ontologies
Semantic Knowledge Management
Semantic search
Thesauri & Taxonomies
Knowledge Bases
Bots
Mash-ups
Autonomic Intellectual Property
Semantic Agent Ecosystems
Agent Webs That Know, Learn, & Reason As Humans Do
Spimes
Web 4.0
The Ubiquitous Web
Connects Intelligence
(2015 - 2030)
SmartMarkets
Blogjects
Hive Minds & Knowledge Networks
Semantic Wikis
Semantic Weblogs
Decentralized Communities
Multi user Gaming
Web search engines
Enterprise Portals
Content Portals
Web 1.0
The Web
Web Sites
Connects Knowledge
(1990 - 2000)
PIMS
Databases
"push" Publish & Subscribe
File Servers
P2P File Sharing
Marketplaces & Auctions
Wikis
Community Portals
Weblogs
RSS
Web 2.0
The Social Web
Connects Knowledge
(2000 - 2010)
Social bookmarking
Email
Instant Messaging
Social Networks
Conferencing
Increasing Knowledge Connectivity & Reasoning
Increasing Social Connectivity

Source: Nova Spivak, Radar Networks & Mills Davis, Project10x

تطور وب

مرکزیت در نسخه‌های متوالی وب



Web 4.0
Agent-Centric
Web 3.0
Machine-Centric
Web 2.0
People-Centric
Web 1.0
Info-Centric

مباحث ویژه پیرامون فضای سایبر

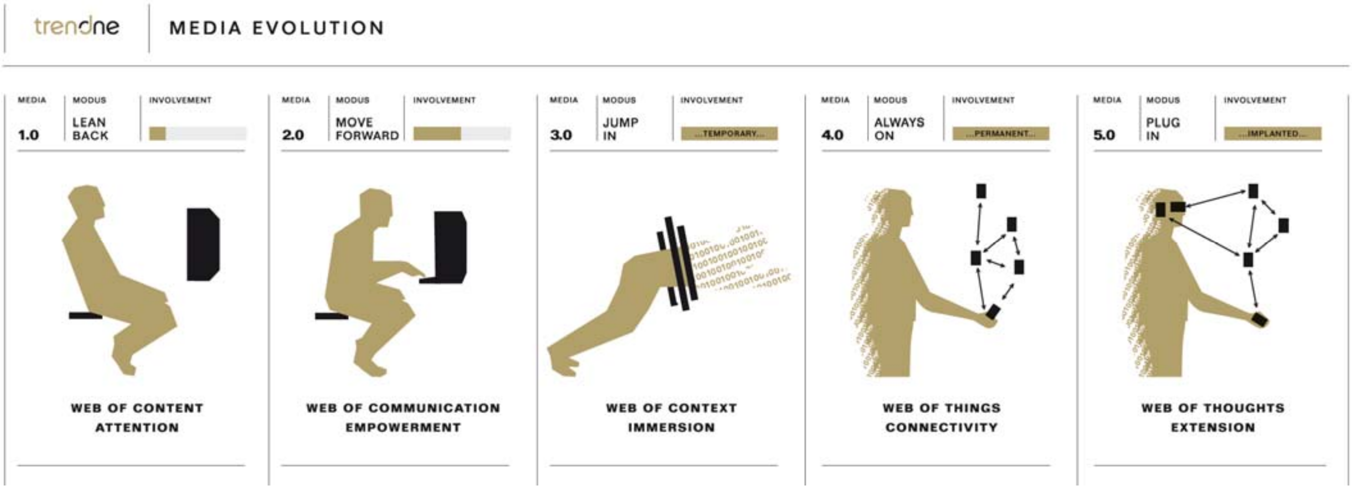
وب استراتژیک

۳

آینده‌شناسی وب

آینده‌شناسی وب

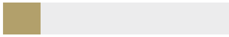
بر مبنای روی‌کرد رسانه‌ای به وب


trendone
MEDIA EVOLUTION
MEDIA
1.0
MODUS
LEAN BACK
INVOLVEMENT
WEB OF CONTENT
ATTENTION
MEDIA
2.0
MODUS
MOVE FORWARD
INVOLVEMENT
WEB OF COMMUNICATION
EMPOWERMENT
MEDIA
3.0
MODUS
JUMP IN
INVOLVEMENT
...TEMPORARY...
WEB OF CONTEXT
IMMERSION
MEDIA
4.0
MODUS
ALWAYS ON
INVOLVEMENT
...PERMANENT...
WEB OF THINGS
CONNECTIVITY
MEDIA
5.0
MODUS
PLUG IN
INVOLVEMENT
...IMPLANTED...
WEB OF THOUGHTS
EXTENSION

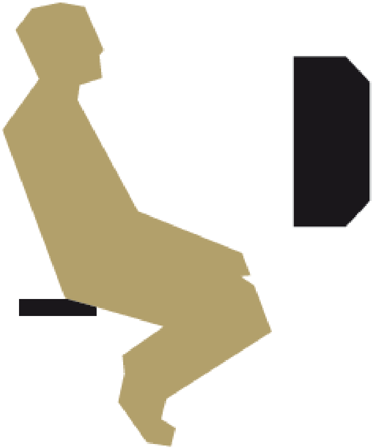
کاظم فولادی

آینده‌شناسی وب

وب توجه به محتوا

MEDIA	MODUS	INVOLVEMENT
1.0	LEAN BACK	

INTERNET
TV
PRINT
OUTDOOR
E-MAIL
SEARCH
RADIO



WEB OF CONTENT
ATTENTION

آینده‌شناسی وب

وب توانمندی ارتباطات

MEDIA	MODUS	INVOLVEMENT
2.0	MOVE FORWARD	

WEB OF COMMUNICATION EMPOWERMENT

- WEB 2.0
- UGC/VIDEOS
- WEBLOG
- INTERACTIVE OOH
- INSTANT MESSAGING
- CROWDSOURCING
- PODCAST
- SOCIAL NETWORKS
- WIKI
- VIRALS
- SOCIAL COMMERCE
- AUCTIONS
- WIDGETS

trendone

آینده‌شناسی وب

وب غوطه‌وری در زمینه

MEDIA	MODUS	INVOLVEMENT
3.0	JUMP IN	...TEMPORARY...

0100100100100100100100100100100100100100100100100100100100100100

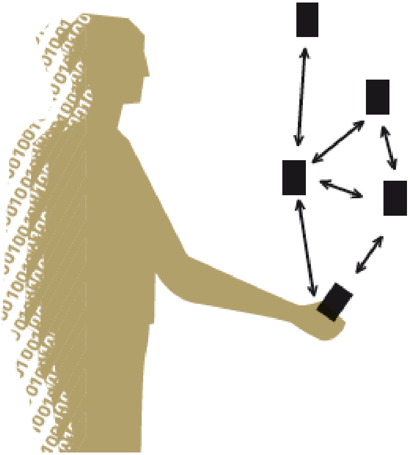
WEB OF CONTEXT
IMMERSION

- WEB 3D
- CINEMATIC GAMES
- SEMANTIC WEB
- HOLO ENTERTAINMENT
- 3D CHAT
- SMART SEARCH
- HOLO TV & GAMING
- VIRTUAL WORLDS
- SMART AV EXPLORATION
- MMORPG
- VIRTUAL SHOPPING
- SMART ADVERTISING
- CONSOLE
- GAMING
- GESTURE CONTROL

آینده‌شناسی وب

وب اتصال اشیا

MEDIA	MODUS	INVOLVEMENT
4.0	ALWAYS ON	...PERMANENT...



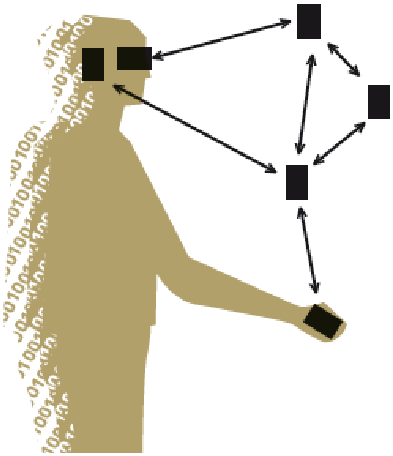
WEB OF THINGS
CONNECTIVITY

OUTERNET
AUGMENTED REALITY
PRINT PLUS
OUTDOOR INWORLD
HYPERLOCALITY
GEOSPATIAL WEB
CONNECTED SPACE
AUGMENTED GOOGLES
AI AGENTS
ULTRA LOCAL NETWORKS
CLOUD COMPUTING
VOICE PROCESSING
WEARABLE TECHNOLOGY
MOBILE COMMUNITY
TACTILE INTERFACE
FACE RECOGNITION
OBJECT RECOGNITION
SHY TECH

آینده‌شناسی وب

وب گسترش افکار

MEDIA	MODUS	INVOLVEMENT
5.0	PLUG IN	...IMPLANTED...

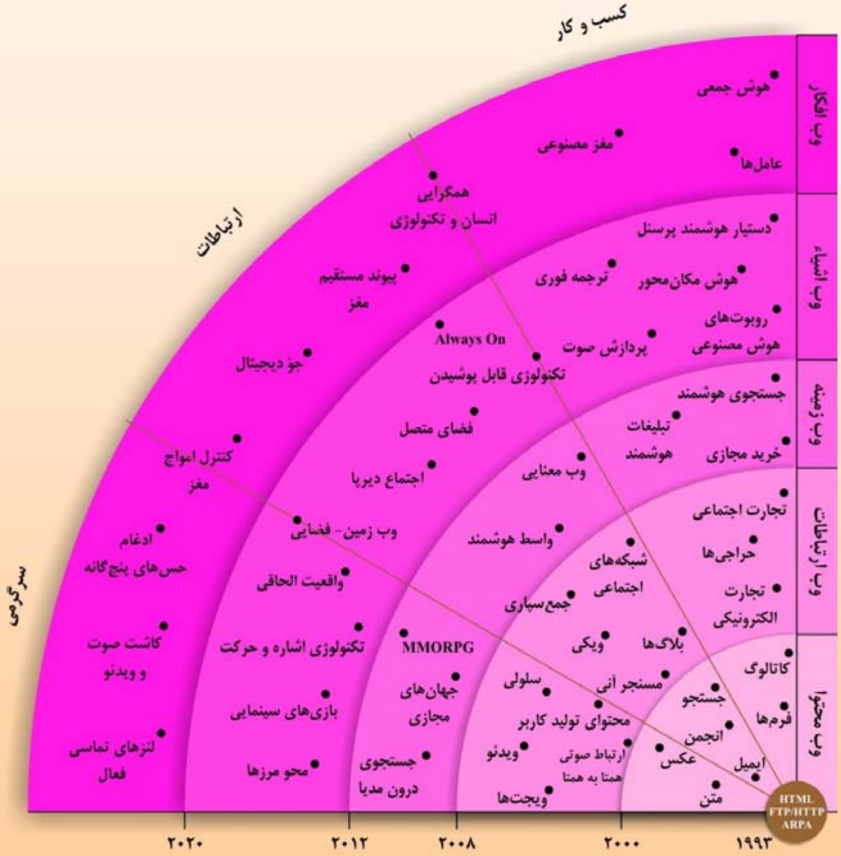


WEB OF THOUGHTS EXTENSION

- BRAIN COMPUTER INTERFACE
- TOTAL IMMERSION
- ACTIVE CONTACT LENSE
- AUGMENTED VISION
- TELEPATHY
- NEURO WEB INTERFACES
- 5 SENSE IMMERSION
- CLAYTRONICS
- ARTIFICIAL BRAIN
- REAL WORLD AVATARS
- NEUROBOTS
- NATURAL LANGUAGE PROCESSING
- NEURO ENHANCEMENT
- EYECHIP
- IMPLANTS
- HUMAN TECHNOLOGY CONVERGENCE
- FULLBODY PROSTHESIS
- VOICELESS COMMUNICATION
- BRAINWAVE CONTROL
- HUMAN 2.0

بسط وب

کسب و کار، ارتباطات و سرگرمی

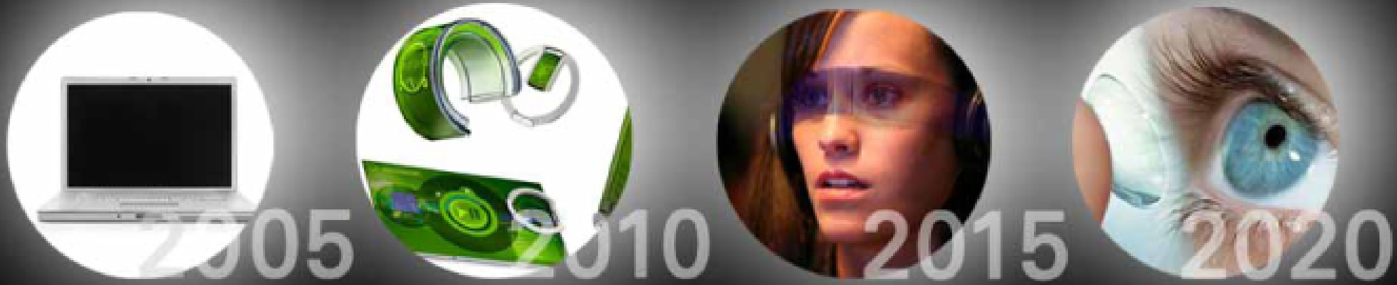

کسب و کار
ارتباطات
سرگرمی
وب افکار
وب اشیاء
وب زمینه
وب ارتباطات
وب محتوا
هوش جمعی
مغز مصنوعی
عامل‌ها
همگرایی انسان و تکنولوژی
پیوند مستقیم مغز
جو دیجیتال
کنترل امواج مغز
ادغام حس‌های پنج‌گانه
کاشت صوت و ویدئو
لنزهای تماسی فعال
دستیار هوشمند پرسنل
ترجمه فوری
هوش مکان‌محور
روبوت‌های هوش مصنوعی
Always On
پردازش صوت
تکنولوژی قابل پوشیدن
فضای متصل
اجتماع دیرپا
وب زمین - فضایی
واقعیت الحاقی
تکنولوژی اشاره و حرکت
بازی‌های سینمایی
محو مرزها
جستجوی هوشمند
تبلیغات هوشمند
خرید مجازی
وب معنایی
واسط هوشمند
تجارت اجتماعی
حراجی‌ها
شبکه‌های اجتماعی
جمع‌سپاری
تجارت الکترونیکی
MMORPG
جهان‌های مجازی
جستجوی درون مدیا
بلاگ‌ها
ویکی
سلولی
مسنجر آنی
محتوای تولید کاربر
ویدئو
ارتباط صوتی همتا به همتا
ویجت‌ها
کاتالوگ
جستجو
فرم‌ها
انجمن
عکس
ایمیل
متن
HTML
FTP/HTTP
ARPA
۲۰۲۰
۲۰۱۲
۲۰۰۸
۲۰۰۰
۱۹۹۳

iNEMO®

Rare
Microsoft game studios
XBOX 360
NEON

KINECT SPORTS

The internet explodes into the real world …
starting to leave our PCs…



…and becomes increasingly mobile, ubiquitous and intuitive.

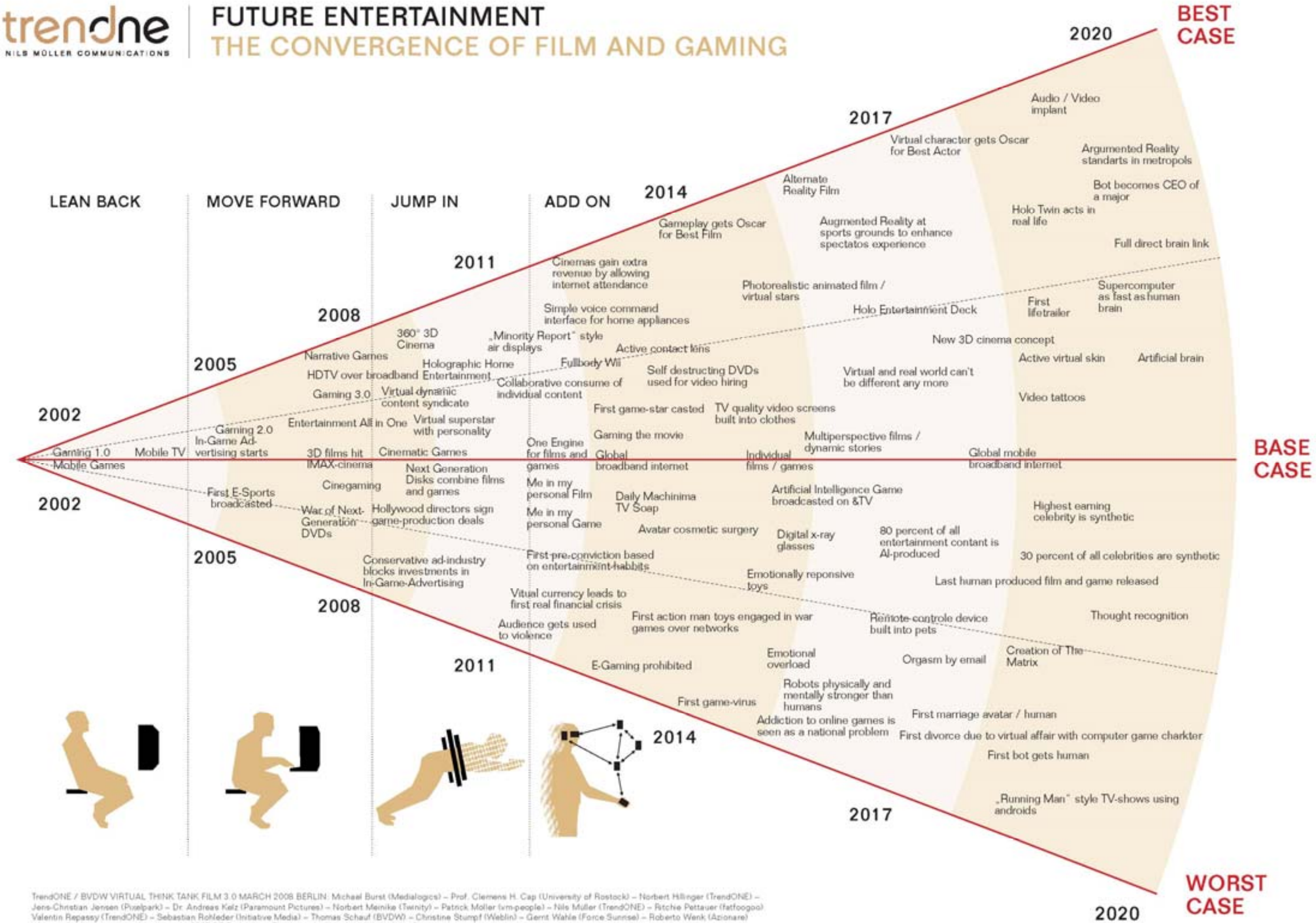
TECHNOLOGY. The internet will become more mobile, augmented and eventually completely immersive.

MARKETING. Marketing will turn from persuasion-marketing, to transparency marketing and will one day be more of a perfect information source, than just an advertising tool.

DAILY LIFE. Information nowadays is controlled by the active self-management of the user. As devices and content become more intelligent, input and output will become increasingly intuitive.

trendone
NILS MÜLLER COMMUNICATIONS

FUTURE ENTERTAINMENT
THE CONVERGENCE OF FILM AND GAMING


BEST CASE
BASE CASE
WORST CASE
LEAN BACK
MOVE FORWARD
JUMP IN
ADD ON
2002
2005
2008
2011
2014
2017
2020
2002
2005
2008
2011
2014
2017
2020
Gaming 1.0
Mobile Games
Mobile TV
Gaming 2.0
In-Game Advertising starts
First E-Sports broadcasted
Narrative Games
HDTV over broadband
Gaming 3.0
Entertainment All in One
3D films hit IMAX-cinema
Cinegaming
War of Next-Generation DVDs
360° 3D Cinema
Holographic Home Entertainment
Virtual dynamic content syndicate
Virtual superstar with personality
Cinematic Games
Next Generation Disks combine films and games
Hollywood directors sign game-production deals
Conservative ad-industry blocks investments in In-Game-Advertising
„Minority Report" style air displays
Fullbody Wii
Collaborative consume of individual content
One Engine for films and games
Me in my personal Film
Me in my personal Game
First pre-conviction based on entertainmint habbits
Vitual currency leads to first real financial crisis
Audience gets used to violence
E-Gaming prohibited
Cinemas gain extra revenue by allowing internet attendance
Simple voice command interface for home appliances
Active contact lens
Self destructing DVDs used for video hiring
First game-star casted
Gaming the movie
Global broadband internet
Daily Machinima TV Soap
Avatar cosmetic surgery
First action man toys engaged in war games over networks
First game-virus
Gameplay gets Oscar for Best Film
Photorealistic animated film / virtual stars
TV quality video screens built into clothes
Individual films / games
Artificial Intelligence Game broadcasted on &TV
Digital x-ray glasses
Emotionally reponsive toys
Emotional overload
Robots physically and mentally stronger than humans
Addiction to online games is seen as a national problem
Alternate Reality Film
Augmented Reality at sports grounds to enhance spectatos experience
Holo Entertainment Deck
Virtual and real world can't be different any more
Multiperspective films / dynamic stories
80 percent of all entertainment contant is AI-produced
Remote controle device built into pets
Orgasm by email
Virtual character gets Oscar for Best Actor
New 3D cinema concept
Global mobile broadband internet
Last human produced film and game released
First marriage avatar / human
First divorce due to virtual affair with computer game charkter
Audio / Video implant
Argumented Reality standarts in metropols
Bot becomes CEO of a major
Holo Twin acts in real life
Full direct brain link
First lifetrailer
Supercomputer as fast as human brain
Active virtual skin
Artificial brain
Video tattoos
Highest earning celebrity is synthetic
30 percent of all celebrities are synthetic
Thought recognition
Creation of The Matrix
First bot gets human
„Running Man" style TV-shows using androids

TrendONE / BVDW VIRTUAL THINK TANK FILM 3.0 MARCH 2008 BERLIN: Michael Burst (Medialogics) – Prof. Clemens H. Cap (University of Rostock) – Norbert Hillinger (TrendONE) – Jens-Christian Jensen (Pixelpark) – Dr. Andreas Kelz (Paramount Pictures) – Norbert Meinike (Twinity) – Patrick Moller (vm-people) – Nils Müller (TrendONE) – Ritchie Pettauer (fatfoogoo) Valentin Repassy (TrendONE) – Sebastian Rohleder (Initiative Media) – Thomas Schauf (BVDW) – Christine Stumpf (Weblin) – Gernt Wahle (Force Sunrise) – Roberto Wenk (Azionare)
Weitere Quellen: www.trendexplorer.de, 2005 BT Technology Timeline edited by Ian Neild and Ian Pearson

مباحث ویژه پیرامون فضای سایبر

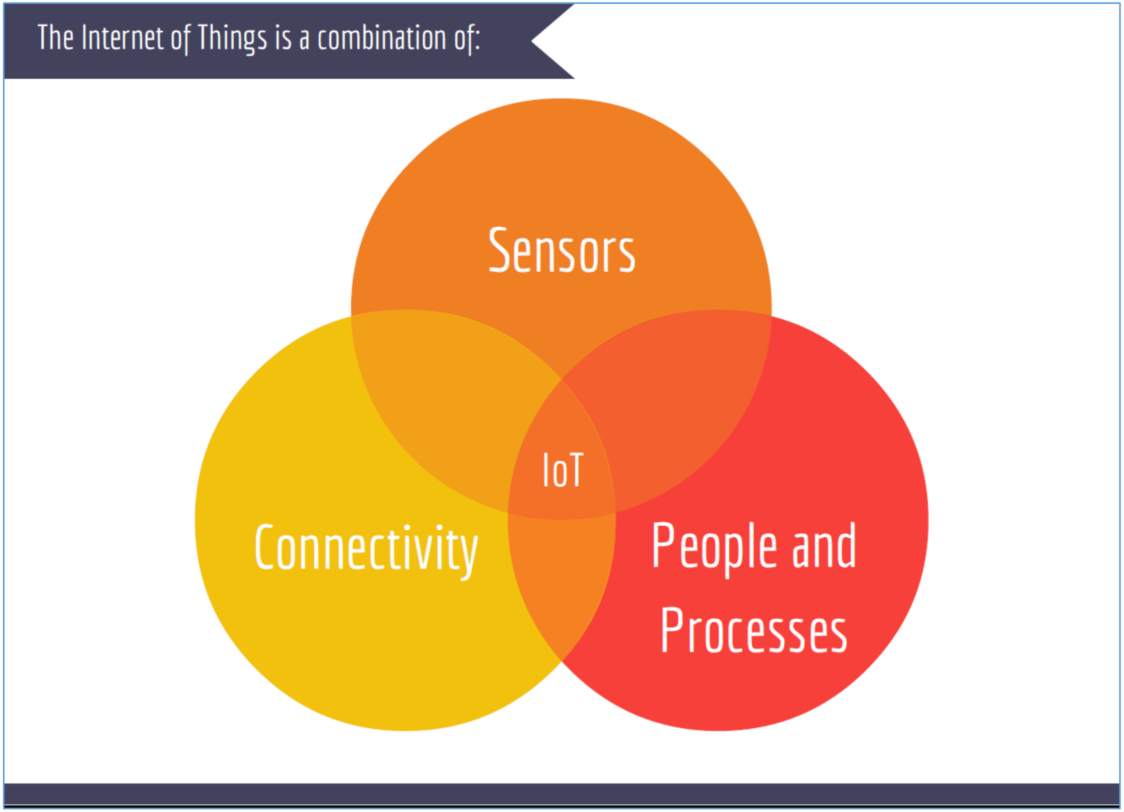
وب استراتژیک

۴

اینترنت اشیا

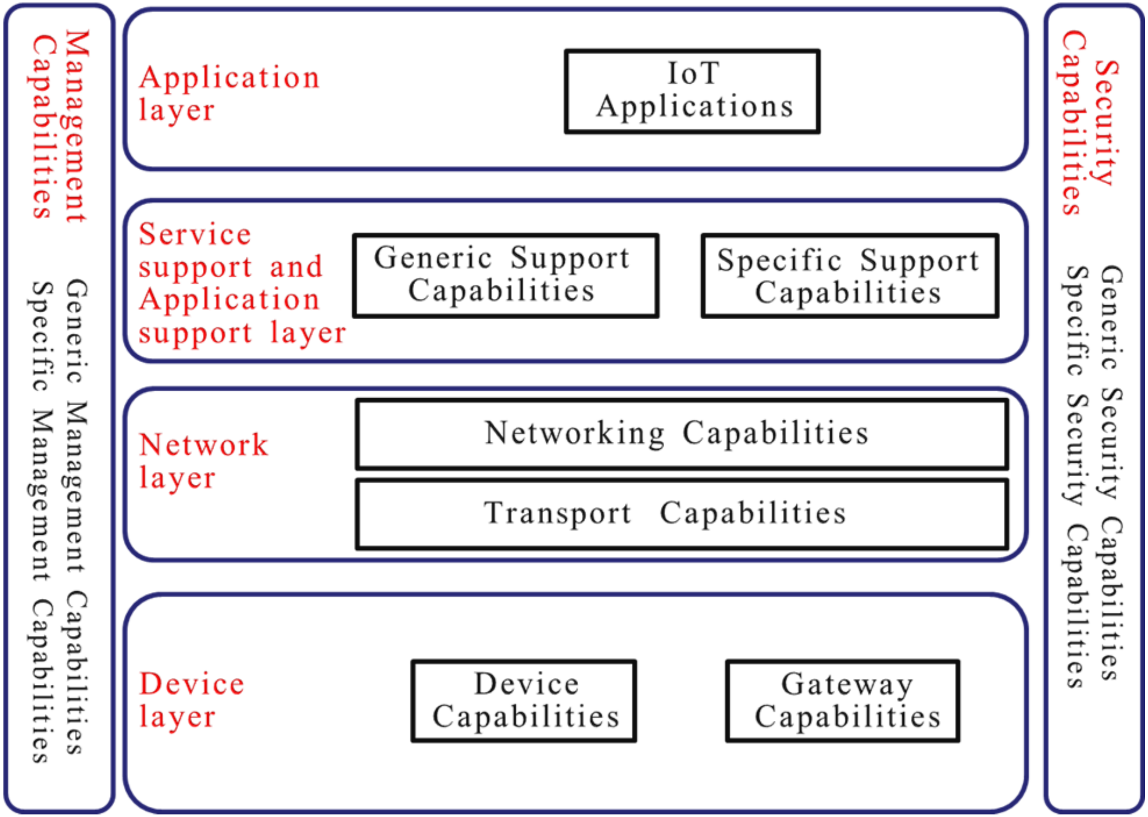
اینترنت اشیا

INTERNET OF THINGS



The Internet of Things is a combination of:

Sensors
Connectivity
People and Processes
IoT


Management Capabilities
Generic Management Capabilities
Specific Management Capabilities
Application layer
IoT Applications
Service support and Application support layer
Generic Support Capabilities
Specific Support Capabilities
Network layer
Networking Capabilities
Transport Capabilities
Device layer
Device Capabilities
Gateway Capabilities
Security Capabilities
Generic Security Capabilities
Specific Security Capabilities

Levels

7 **Collaboration & Processes**
(Involving People & Business Processes)

6 **Application**
(Reporting, Analytics, Control)

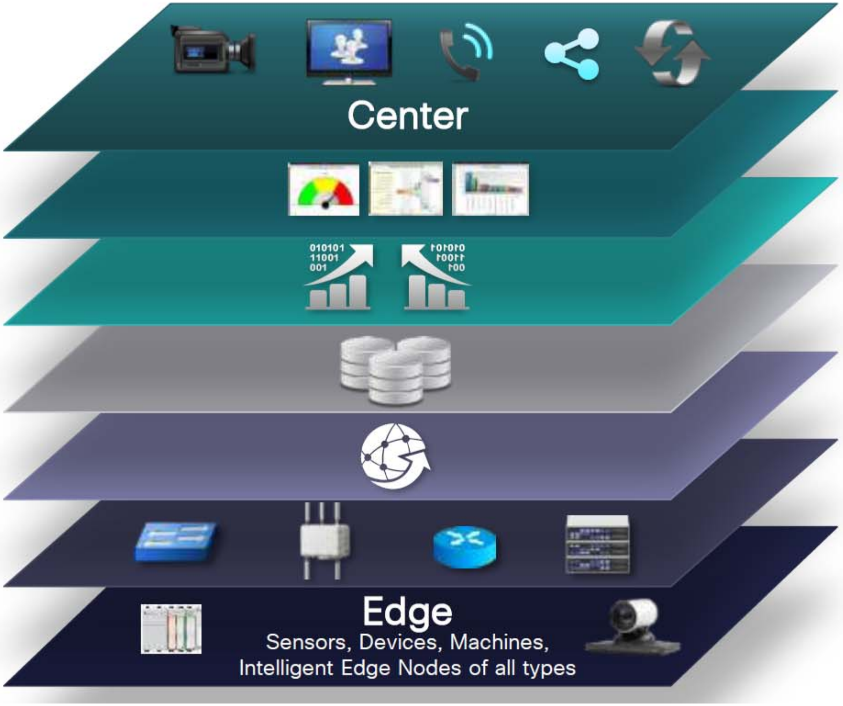
5 **Data Abstraction**
(Aggregation & Access)

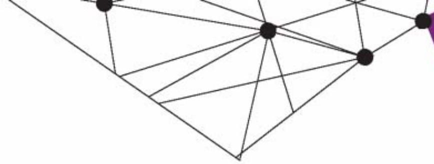
4 **Data Accumulation**
(Storage)

3 **Edge Computing**
(Data Element Analysis & Transformation)

2 **Connectivity**
(Communication & Processing Units)

1 **Physical Devices & Controllers**
(The “Things” in IoT)


Center
010101
11001
001
Edge
Sensors, Devices, Machines,
Intelligent Edge Nodes of all types



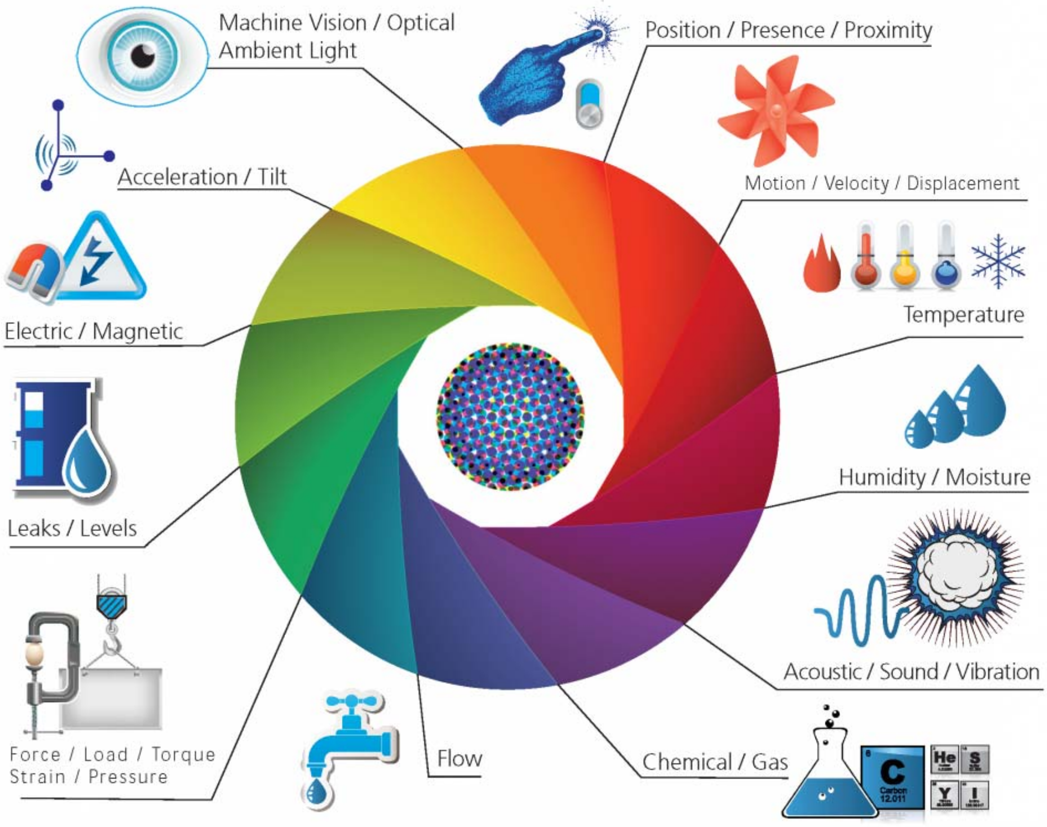
What exactly is the "INTERNET of THINGS"?

Smart Systems and the Internet of Things are driven by a combination of:

1. **SENSORS** & ACTUATORS
2. **CONNECTIVITY**
3. **PEOPLE** & **PROCESSES**

1 SENSORS & *ACTUATORS*

We are giving our world a digital nervous system. Location data using GPS sensors. Eyes and ears using cameras and microphones, along with sensory organs that can measure everything from temperature to pressure changes.



Machine Vision / Optical
Ambient Light

Position / Presence / Proximity

Acceleration / Tilt

Motion / Velocity / Displacement

Electric / Magnetic

Temperature

Leaks / Levels

Humidity / Moisture

Acoustic / Sound / Vibration

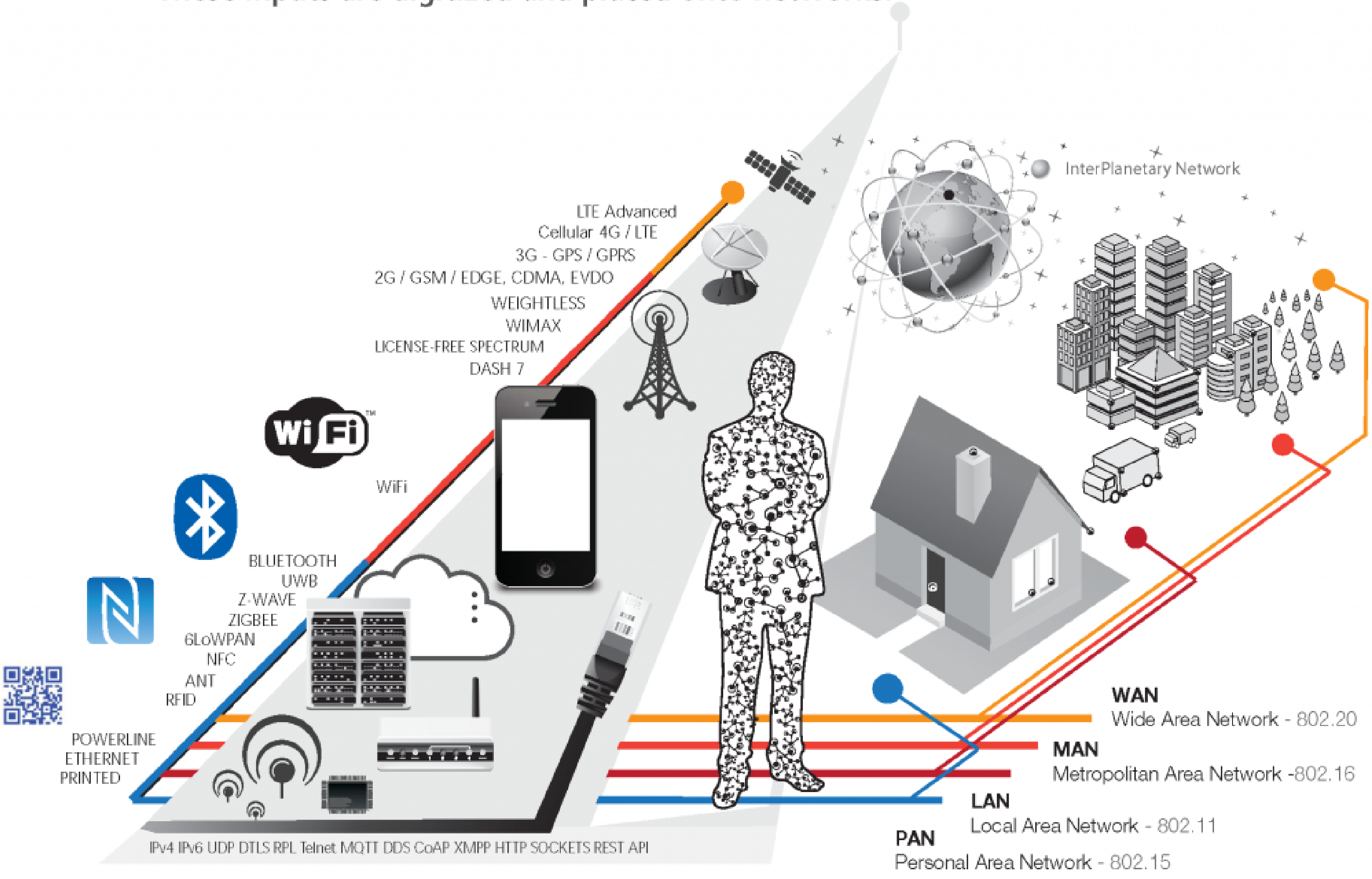
Force / Load / Torque
Strain / Pressure

Flow

Chemical / Gas

2 CONNECTIVITY

These inputs are digitized and placed onto networks.



InterPlanetary Network

LTE Advanced
Cellular 4G / LTE
3G - GPS / GPRS
2G / GSM / EDGE, CDMA, EVDO
WEIGHTLESS
WIMAX
LICENSE-FREE SPECTRUM
DASH 7

WiFi

BLUETOOTH
UWB
Z-WAVE
ZIGBEE
6LoWPAN
NFC
ANT
RFID

POWERLINE
ETHERNET
PRINTED

IPv4 IPv6 UDP DTLS RPL Telnet MQTT DDS CoAP XMPP HTTP SOCKETS REST API

WAN
Wide Area Network - 802.20

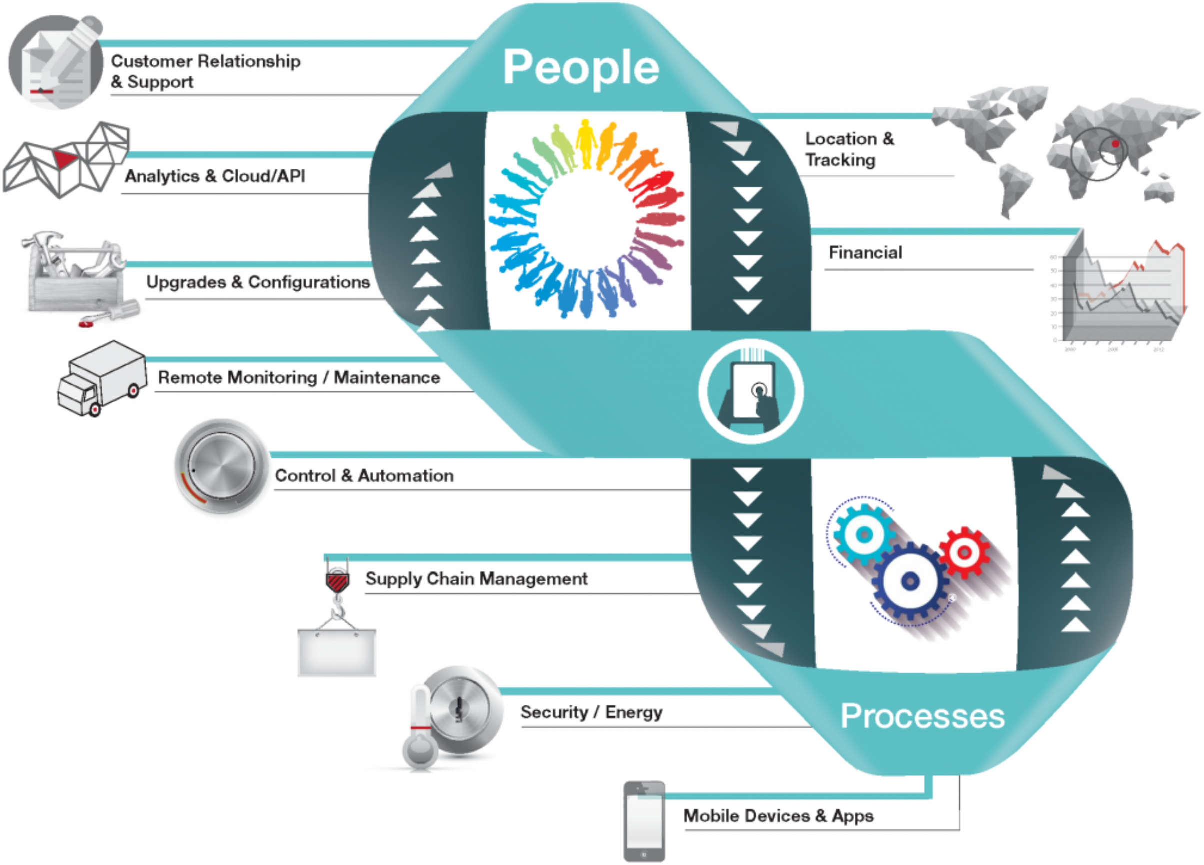
MAN
Metropolitan Area Network -802.16

LAN
Local Area Network - 802.11

PAN
Personal Area Network - 802.15

3 PEOPLE & *PROCESSES*

These networked inputs can then be combined into bi-directional systems that integrate data, people, processes and systems for better decision making.


People
Customer Relationship & Support
Analytics & Cloud/API
Upgrades & Configurations
Remote Monitoring / Maintenance
Control & Automation
Supply Chain Management
Security / Energy
Location & Tracking
Financial
Processes
Mobile Devices & Apps

The interactions between these

SENSORS + CONNECTIVITY + PEOPLE + PROCESSES

entities are creating new types of smart applications and services.

Starting with popular connected devices already on the market

SMART THERMOSTATS

nest

Save resources and money on your heating bills by adapting to your usage patterns and turning the temperature down when you're away from home.

CONNECTED CARS

CAR 2GO

Tracked and rented using a smartphone. Car2Go also handles billing, parking and insurance automatically.

ACTIVITY TRACKERS

BASIS

Continuously capture heart rate patterns, activity levels, calorie expenditure and skin temperature on your wrist 24/7.

SMART OUTLETS

belkin

Remotely turn any device or appliance on or off. Track a device's energy usage and receive personalized notifications from your smartphone.

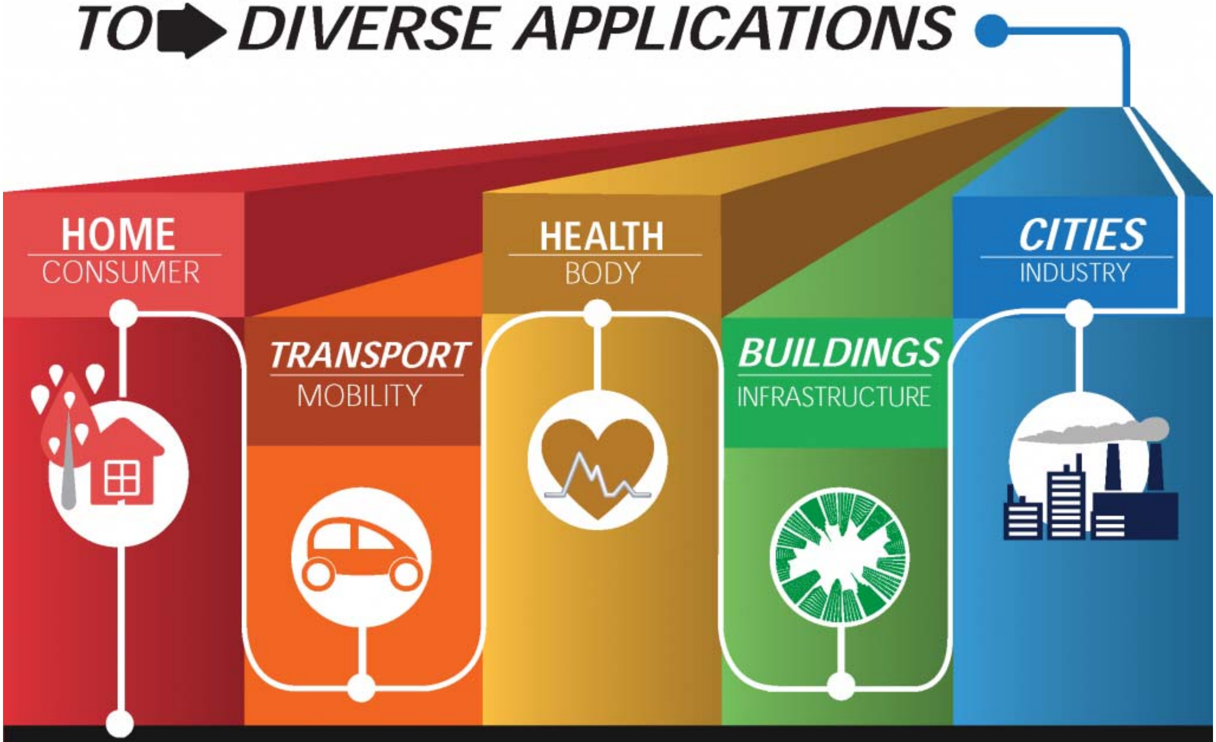
PARKING SENSORS

STREETLINE
CONNECTING THE REAL WORLD

Using embedded street sensors, users can identify real-time availability of parking spaces on their phone. City officials can manage and price their resources based on actual use.

And quickly advancing

TO ➡ DIVERSE APPLICATIONS



HOME
CONSUMER

- Light bulbs
- Security
- Pet Feeding
- Irrigation Controller
- Smoke Alarm
- Refrigerator
- Infotainment
- Washer / Dryer
- Stove
- Energy Monitoring

TRANSPORT
MOBILITY

- Traffic routing
- Telematics
- Package Monitoring
- Smart Parking
- Insurance Adjustments
- Supply Chain
- Shipping
- Public Transport
- Airlines
- Trains

HEALTH
BODY

- Patient Care
- Elderly Monitoring
- Remote Diagnostic
- Equipment Monitoring
- Hospital Hygiene
- Bio Wearables
- Food sensors

BUILDINGS
INFRASTRUCTURE

- HVAC
- Security
- Lighting
- Electrical
- Transit
- Emergency Alerts
- Structural Integrity
- Occupancy
- Energy Credits

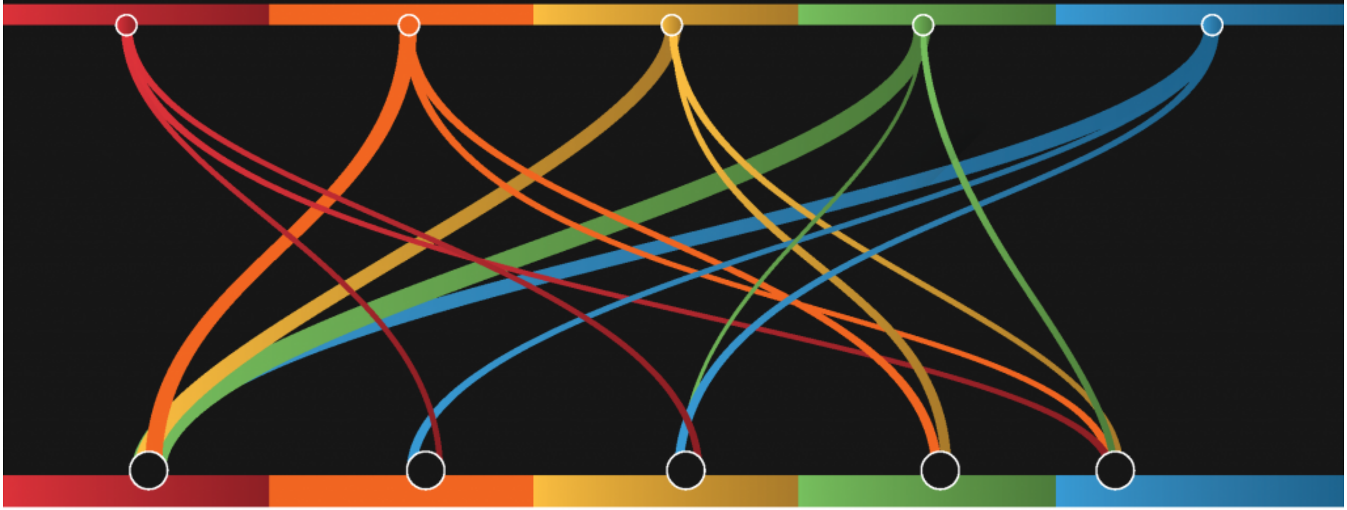
CITIES
INDUSTRY

- Electrical Distribution
- Maintenance
- Surveillance
- Signage
- Utilities / Smart Grid
- Emergency Services
- Waste Management

Things get interesting when these connected devices and services start creating

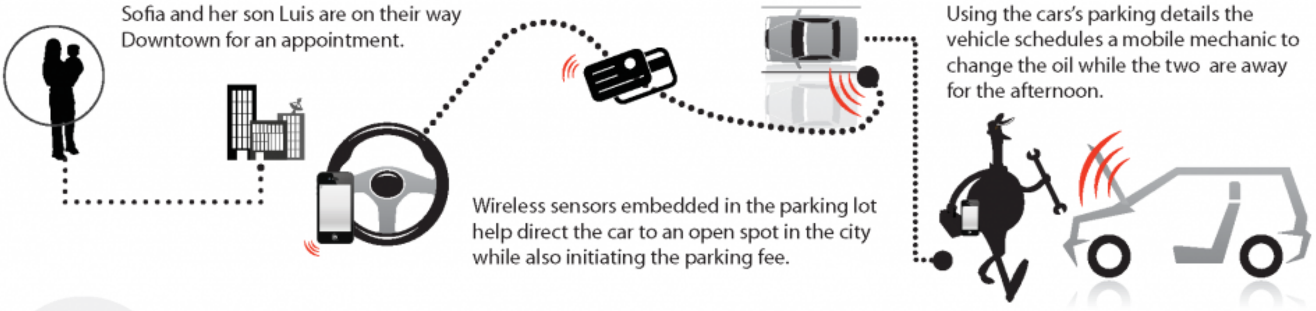
COMPOUND APPLICATIONS

within their own verticals and across industries:



FOR EXAMPLE

TRANSPORTATION + SMART CITIES



Sofia and her son Luis are on their way Downtown for an appointment.

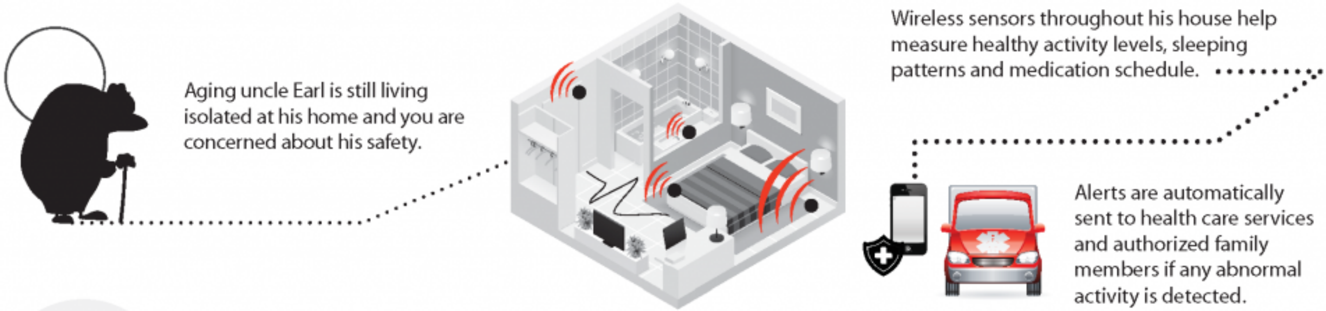
Wireless sensors embedded in the parking lot help direct the car to an open spot in the city while also initiating the parking fee.

Using the cars's parking details the vehicle schedules a mobile mechanic to change the oil while the two are away for the afternoon.

In Downtown San Francisco 20-30% of all traffic congestion is caused by people hunting for a parking spot.

- San Francisco Municipal Transportation Agency (SFMTA)

HEALTHCARE + SMART HOME



Aging uncle Earl is still living isolated at his home and you are concerned about his safety.

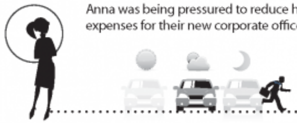
Wireless sensors throughout his house help measure healthy activity levels, sleeping patterns and medication schedule.

Alerts are automatically sent to health care services and authorized family members if any abnormal activity is detected.

40 million adults age 65 and over will be living alone in the U.S, Canada and Europe.

- U.S. Department of Health and Human Services: Administration for Community Living (ACL)

SMART BUILDINGS + MOBILITY



Anna was being pressured to reduce her company's expenses for their new corporate office.

After speaking with experts she decided to install sensors to automate energy usage according to building occupancy, people flow, temperature, and other ambient conditions -- Improving the buildings overall efficiency.

> *Energy used by commercial and industrial buildings in the US creates nearly 50% of our national emissions of greenhouse gases.*
>
> - United States Environmental Protection Agency

Inevitably these integrations become more tightly coupled across time, location & services.

REAL-TIME SERVICE NETWORKS

- ● Appliance Monitoring
- ● Predictive Maintenance
- ● Service Technician / CRM
- ● Waste Management / Recycling

R Hotel Denver,
Industrial Washer #GHS40-2608

Location: ID: *FC-RM #00243*
Manufacturer: *Appliance Park Louisville, KY ID: #45205343*
Materials: *FC / SUS*
Sensor: *Vibration*
Connectivity: *Wireless LAN*

Connor, the Lead Maintenance Manager at the R Hotel in Denver receives a sensor notification that the pump body O-ring #6 on washing machine #230243 is starting to fail in the housekeeping laundry room.

On his mobile, Connor prompts the machine to order a new part. This action triggers a bidding opportunity for local service technicians within the product's authorized maintenance network.

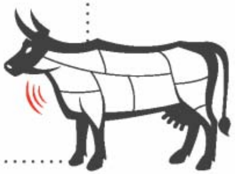
The request lays out:
- *Pricing parameters*
- *Timing requirements*
- *Machine history*
- *Part specs*
- *Predictive sensor measurements & alerts*

Tom from IA Appliances bids on the service request and receives a notification a few moments later that his bid was accepted.

Within 1.5 hours, a service technician from IA Appliances is on site (Using a temporary facility access code for the wireless door lock) to replace the water pump. Connor sends a brief note on the service quality and IA Appliances releases a bid request for the part's raw materials to local recycling centers.

DIGITAL FARM TO TABLE

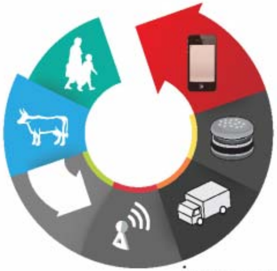
- 🟢 Farm & Livestock ID & Sensors
- 🔵 Food packaging sensors
- 🟠 Retail Supply Chain Monitoring
- 🔴 Health Services



Cattle
AIN: 840 003 123 456 789

Location: ID: Braymeadow Farm *FR #00285453543*
Slaughterhouse ID: *#45205343*
Sensor: *Temperature, Accelerometer*
Connectivity: *RFID, NFC, WAN*

Maria and her daughter are picking up groceries for the week. Using packaging with printed sensors, the two can make sure the ground beef they are purchasing has never reached unsafe temperature levels while on the shelf or being transported.



The packaging also contains a QR code which they can use to query the cows RFID tag and bring up its history:

- Where it was raised	*- Where it was packaged*	*- Where it was slaughtered*
- What it was fed	*- How it was transported*	*- The last time it was inspected.*

A week later the U.S. Department of Agriculture's Food Safety Service determined ground beef from originating from a regional packing company and sold at a neighboring store was contaminated with E. coli O157:H7. All packages from this distributer changed their alert color and notification messages were sent to those shoppers that may have been impacted.

How large is the IoT Market?

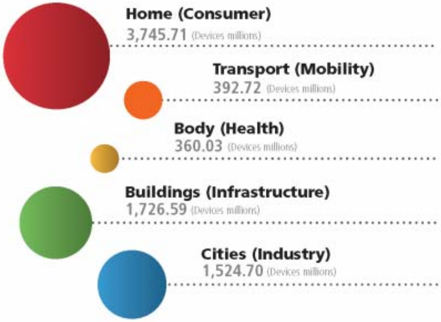
In the not-too-distant future, hundreds of millions, then billions, of individuals and businesses with billions, then trillions, of smart, communicating devices will stretch the boundaries of current systems. Creating the potential to change the way we work, learn, entertain and innovate.

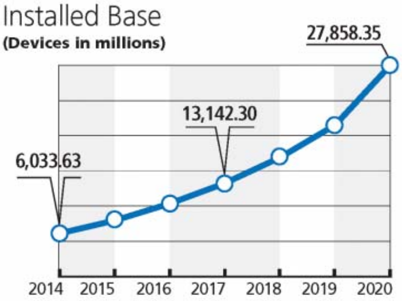
Connected Devices

In 2014 nearly **2 billion** connected devices will be shipped

This number will grow to nearly **8 billion** devices for the year 2020

*Not including mobile phones





Installed Base

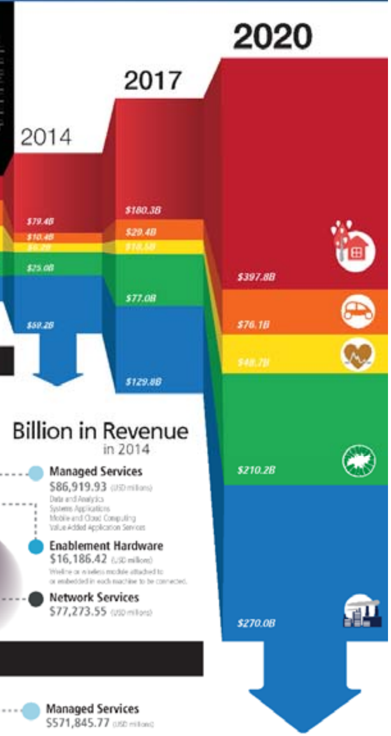
(Devices in millions)

Business Impact

The implications of these trends are enormous. Vertically defined, stand-alone products and application markets will increasingly become a part of larger **networked "horizontal" systems**.

Revenue opportunities

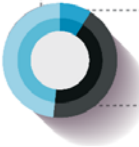
from the Internet of Things:



2014

180+ Billion in Revenue

in 2014

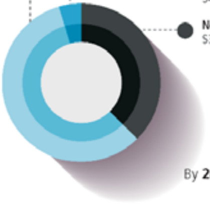


Managed Services
$86,919.93 (USD millions)
Data and Analytics
Systems Applications
Mobile and Cloud Computing
Value Added Application Services

Enablement Hardware
$16,186.42 (USD millions)
Wireline or wireless module attached to or embedded in each machine to be connected.

Network Services
$77,273.55 (USD millions)

2020



Managed Services
$571,845.77 (USD millions)

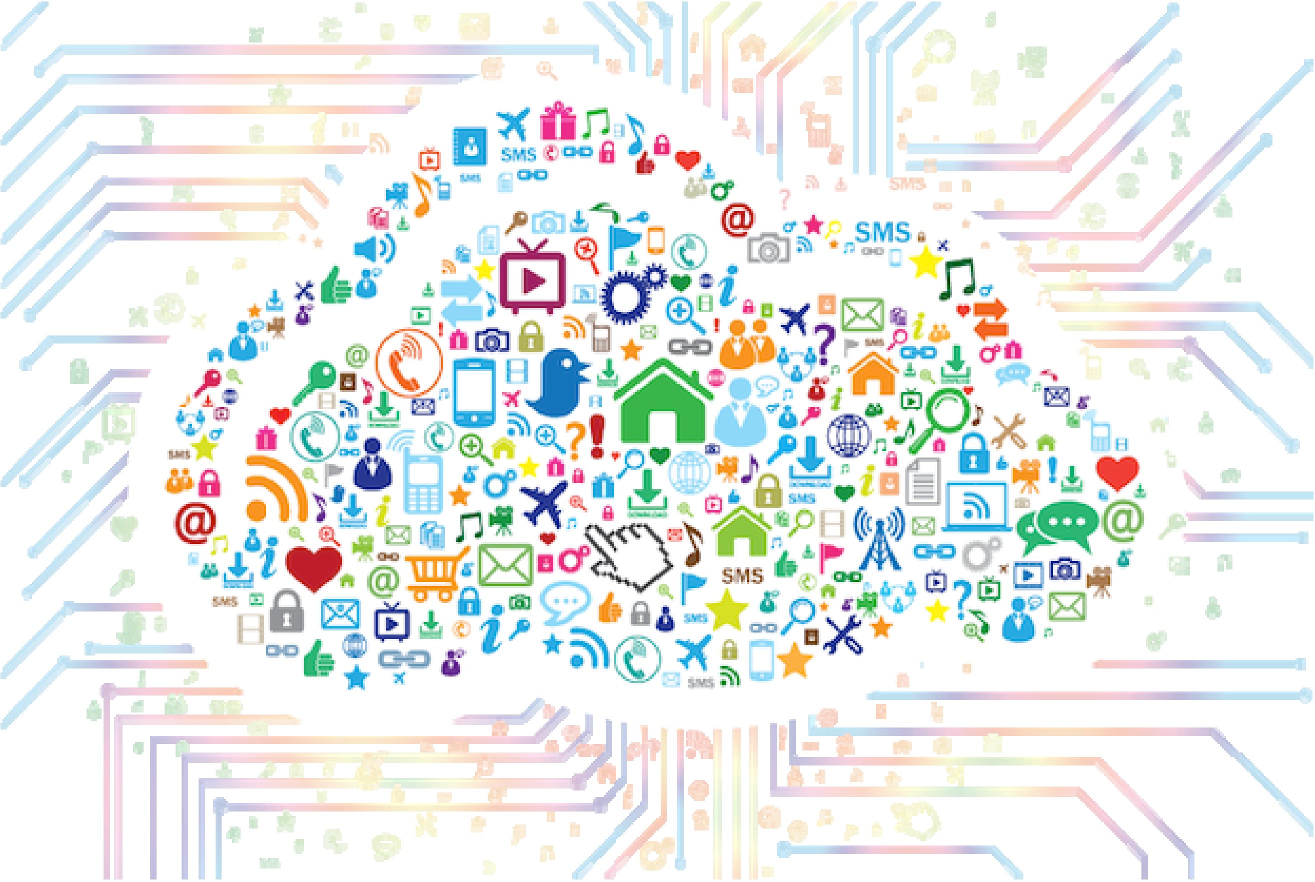
Enablement Hardware
$43,782.24 (USD millions)

Network Services
$387,453.46 (USD millions)

$1

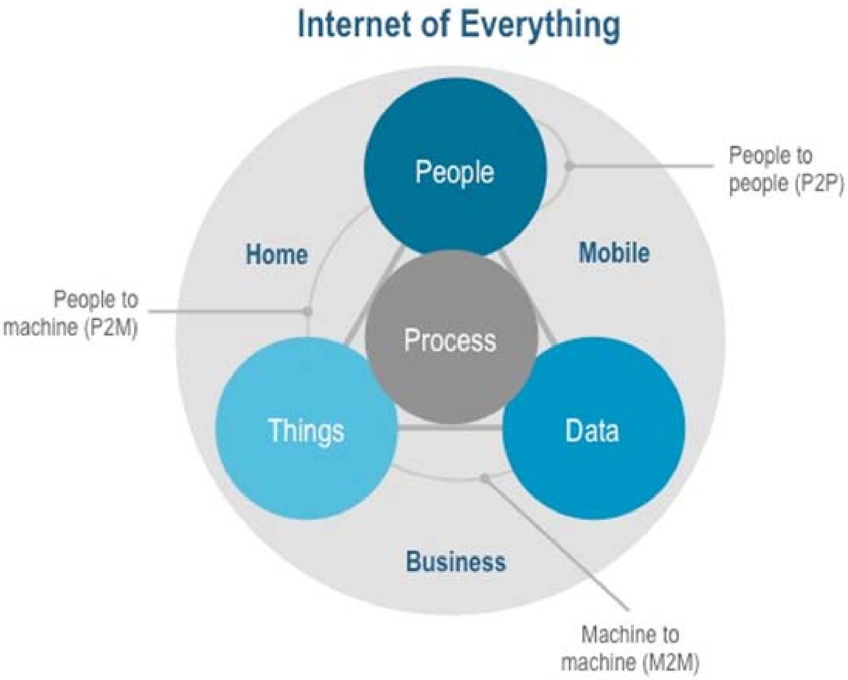
By **2020** this opportunity will grow to more than

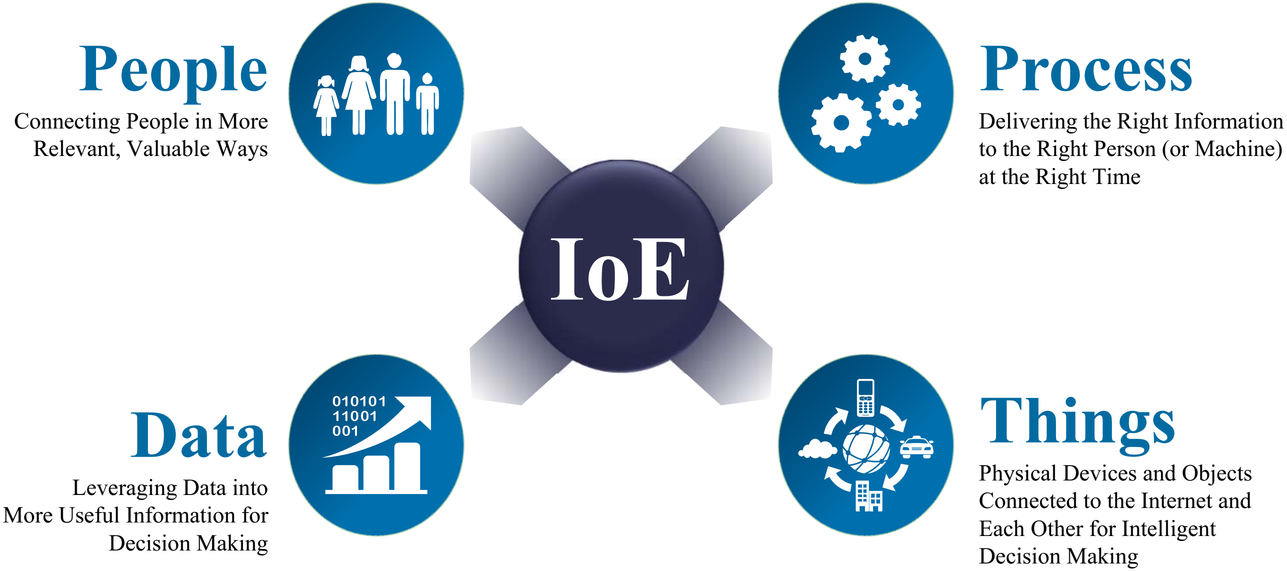
>$1 Trillion



اینترنت همه‌چیز

INTERNET OF EVERYTHINGS


Internet of Everything
People
Process
Things
Data
Home
Mobile
Business
People to people (P2P)
People to machine (P2M)
Machine to machine (M2M)



People

Connecting People in More Relevant, Valuable Ways

Process

Delivering the Right Information to the Right Person (or Machine) at the Right Time

Data

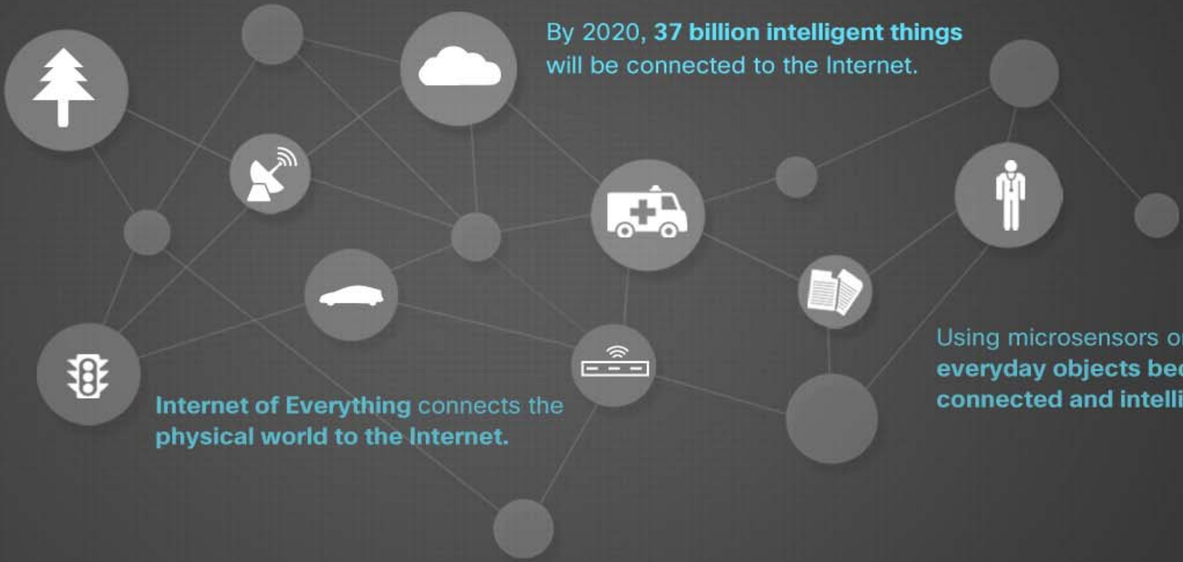
Leveraging Data into More Useful Information for Decision Making

Things

Physical Devices and Objects Connected to the Internet and Each Other for Intelligent Decision Making

Today, more than **99% of things** in the physical world **are still not connected to the Internet.**

But a phenomenon called "The Internet of Everything" will wake up **everything you can imagine.**



By 2020, **37 billion intelligent things** will be connected to the Internet.

Using microsensors on the network, **everyday objects become connected and intelligent.**

Internet of Everything connects the **physical world to the Internet.**

The Internet of
EVERYTHING

#InternetofEverything
#IoE

CISCO

مباحث ویژه پیرامون فضای سایبر

وب استراتژیک

۵

وب
استراتژیک

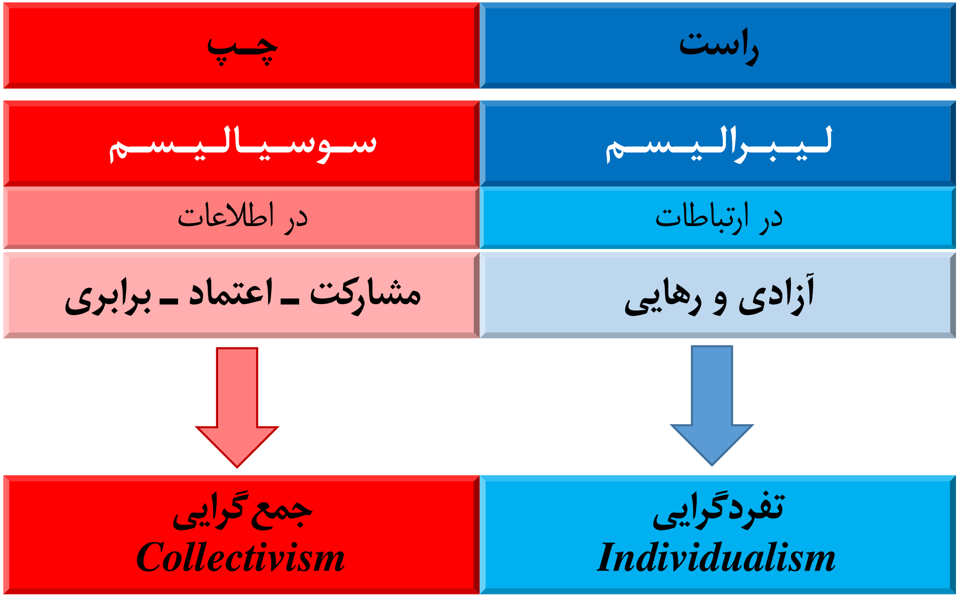
وب استراتژیک

وب استراتژیک

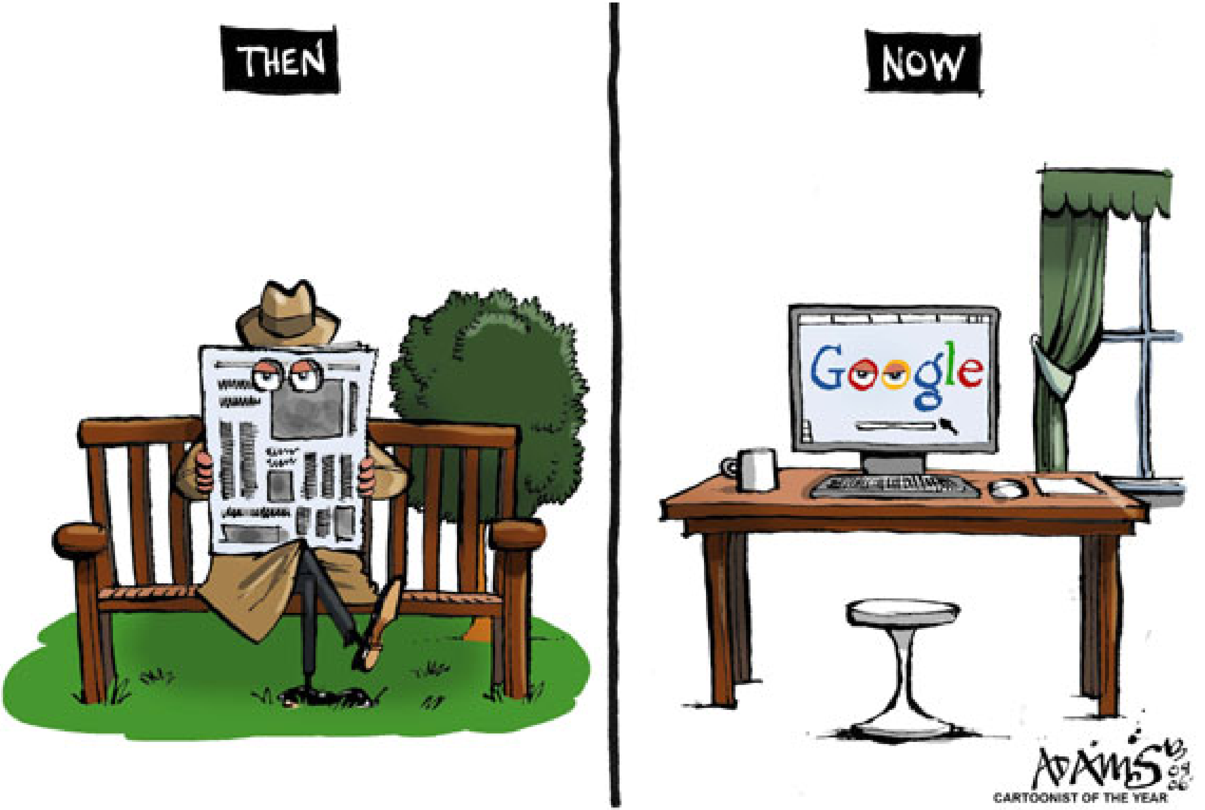
بخشی از وب که بر بقاء و بسط تمدن مؤثر است.

وب استراتژیک

تلفیق ایدئولوژی‌های: لیبرالیسم ارتباطی ـ سوسیالیسم اطلاعاتی



راست	چپ
لیبرالیسم	**سوسیالیسم**
در ارتباطات	در اطلاعات
آزادی و رهایی	**مشارکت ـ اعتماد ـ برابری**
↓	↓
تفردگرایی ***Individualism***	**جمع گرایی** ***Collectivism***

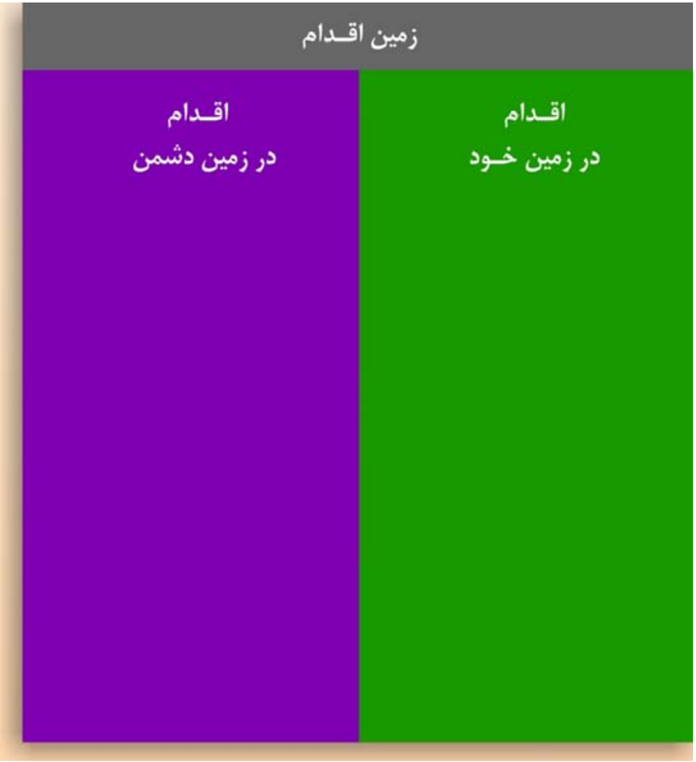

THEN
NOW
Google
ADAMS 12 09 06
CARTOONIST OF THE YEAR

وب استراتژیک

۶

استراتژی
اقدام
در
وب

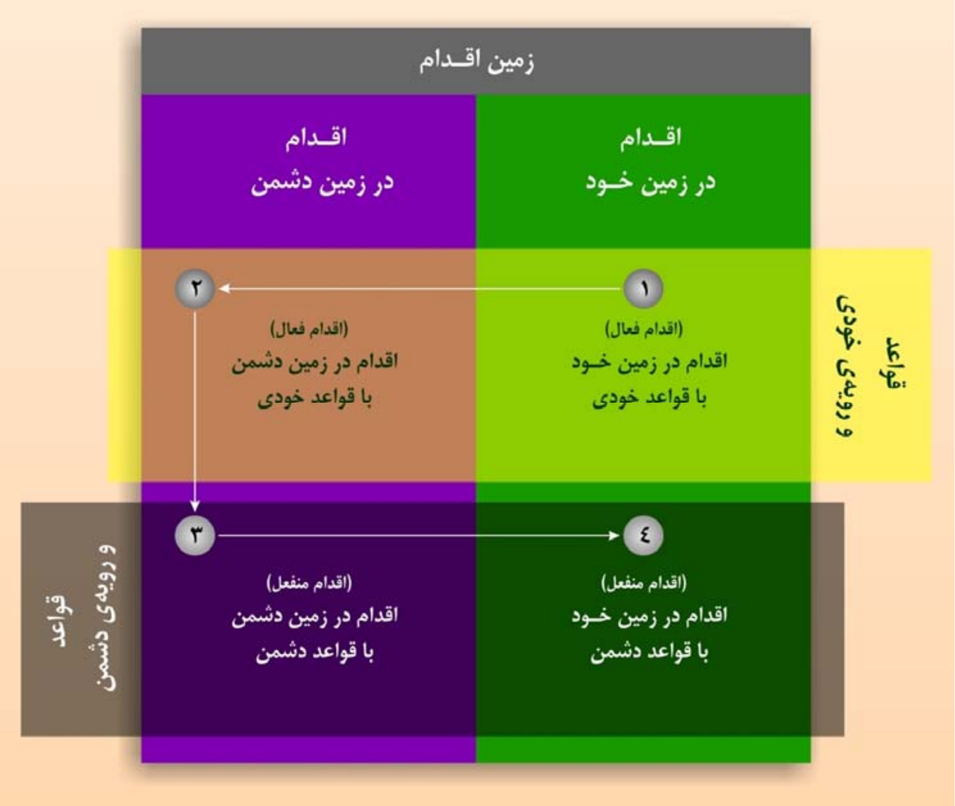
زمین اقدام



زمین اقدام	
اقدام در زمین خود	اقدام در زمین دشمن

اقدام متقارن و اقدام نامتقارن

از دید «خودی»



زمین اقـدام

اقـدام
در زمین خـود

اقـدام
در زمین دشمن

قواعد
و رویه‌ی خودی

۱
(اقدام فعال)
اقدام در زمین خـود
با قواعد خودی

۲
(اقدام فعال)
اقدام در زمین دشمن
با قواعد خودی

۳
(اقدام منفعل)
اقدام در زمین دشمن
با قواعد دشمن

۴
(اقدام منفعل)
اقدام در زمین خـود
با قواعد دشمن

قواعد
و رویه‌ی دشمن

استراتژی اقدام در وب

اقدام‌های متقارن و نامتقارن

		تقارن اقدام	
		اقدام نامتقارن	**اقدام متقارن**
سطح اقدام	**استراتژیکی**	اقدام نامتقارن استراتژیکی	اقدام متقارن استراتژیکی
	عملیاتی	اقدام نامتقارن عملیاتی	اقدام متقارن عملیاتی
	تاکتیکی	اقدام نامتقارن تاکتیکی	اقدام متقارن تاکتیکی
	تکنیکی	اقدام نامتقارن تکنیکی	اقدام متقارن تکنیکی

استراتژی اقدام در وب

اقدام‌های متقارن و نامتقارن، مثبت و منفی

		تقارن اقدام			
		اقدام نامتقارن		اقدام متقارن	
		مثبت +	منفی −	مثبت +	منفی −
سطح اقدام	استراتژیکی	۱	۲	۳	۴
	عملیاتی	۵	۶	۷	۸
	تاکتیکی	۹	۱۰	۱۱	۱۲
	تکنیکی	۱۳	۱۴	۱۵	۱۶