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Establish a feeling: The OTT service is CE device independent. Be the first - be omnipresent!

OTT SWIPE ™ and the virtual Set-Top-Box

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Siemens Convergence Creators at a glance

Siemens CVC / August 2014

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Our markets – Our portfolio

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Products to deliver content to the customer leveraging the available network to maximum

Infotainment solutions for public & private transport

Satellite testing, monitoring, controlling and communication

Single authentication (AAA)
Policy Rules function (PCRF)

Applications for dedicated communication networks as Law enforcement & Emergency agencies or Vertical industries

Life time extension of telecom equipment at Tier 1 suppliers
Mobile Payment
For any kind of bills, utilities,
Media content providers as well as
Top Voucher Management

Telco & Media

Industries

- Professional Services
- LTE
- Over-The-Top TV
- Infotainment & Avionics
- Space
- Infrastructure & Security

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Telco & media market portfolio 1

Professional Services

Lifetime Extension and Care Services
- Life Time extension and maintenance of Telecom network elements
- Integration of new technologies into existing system infrastructures
- Support for the consolidation and migration towards IP

walletXpress
- Mobile payment for any kind of bills, utilities, media content providers.
- Mobile money transfer
- Voucher less / based recharging platform

bonusXpress
- A convergent, smart, flexible, offline and easy to integrate promotion engine
- Converts usage data into virtual currency

Telco & media market portfolio 2

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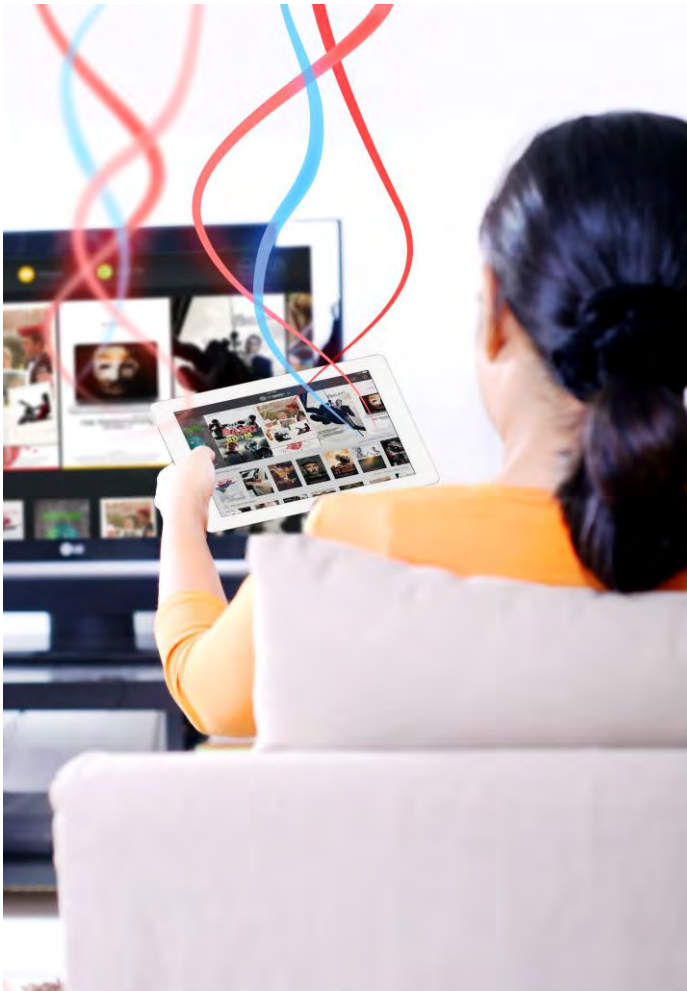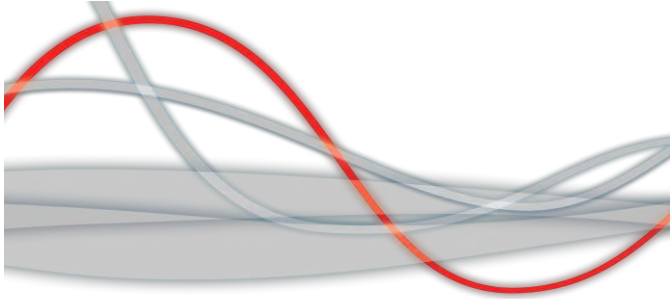| LTE	**AAA / PCRF** ▪ Siemens Session Manager (AAA) is a highly flexible rules engine for AAA access rules ▪ Siemens Policy Manager (PCRF) manages your network & your subscriber policies

Over The Top TV	**OTT SWIPE ™** ▪ enables digital media creation, delivery and distribution via multi-screen platforms while ensuring operational efficiency, security for your content and content quality for your customers. ▪ Multiscreen advertising enables Flexible functionality - Broadcasting different advertisement formats on multiple devices

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Table of content

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OTT SWIPE ™ UX as a Service / OTT SWIPE ™ / virtual Set-Top-Box

OTT SWIPE ™ UX as a Service brings our unique OTT SWIPE ™ user experience to any existing OTT platform. The USP is UX!

- SWIPE UX
- Automatic device detection & pairing

OTT SWIPE ™ in terms, is the entire OTT end-to-end solution.

- A complete OTT eco-system with an award-winning user experience.

The future of television is virtual instead of having additional service supply devices for OTT service consumption. The set-top box of the future is an app**!**

- Challenge the CE device jungle.

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The virtual Set-Top-Box.

Apt quotation from the Policy Department of the European Parliament.

"However, legacy linear TV is demonstrating considerable resilience in the face of the expanding multi-screen paradigm, which mixes both linear and non-linear experiences. It seems therefore extremely probable that it will remain a key feature of the content delivery landscape for a very long time to come, even if access to the broadcast signal might in future be through a <u>click on an app</u>, rather than a channel number."

(POLICY DEPARTMENT B: STRUCTURAL AND COHESION POLICIES, EUROPEAN PARLIAMENT, THE CHALLENGES OF CONNECTED TV, 2013)

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The complete OTT ecosystem deployed by Siemens!

Siemens has a long experience in deploying complete
OTT ecosystems including every single part.

System layers of an OTT ecosystem at a glance!

- Frontend Layer(*)
- Service Delivery Layer
- Content Ingestion Layer
- Service Management Layer
- Service Operations Layer
- External Layer

(*)If an OTT ecosystem is already deployed the
Frontend Layer is high **resource intensive to
maintain**. Nowadays The CE device jungle is one of
the large challenges! (platform, OS versions, devices)

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Trend insights served by Ericsson ConsumerLab.

Ericsson ConsumerLab indentify 2014 the consumption of video streaming services (75%) become almost equal to the consumption of broadcast TV (77%).
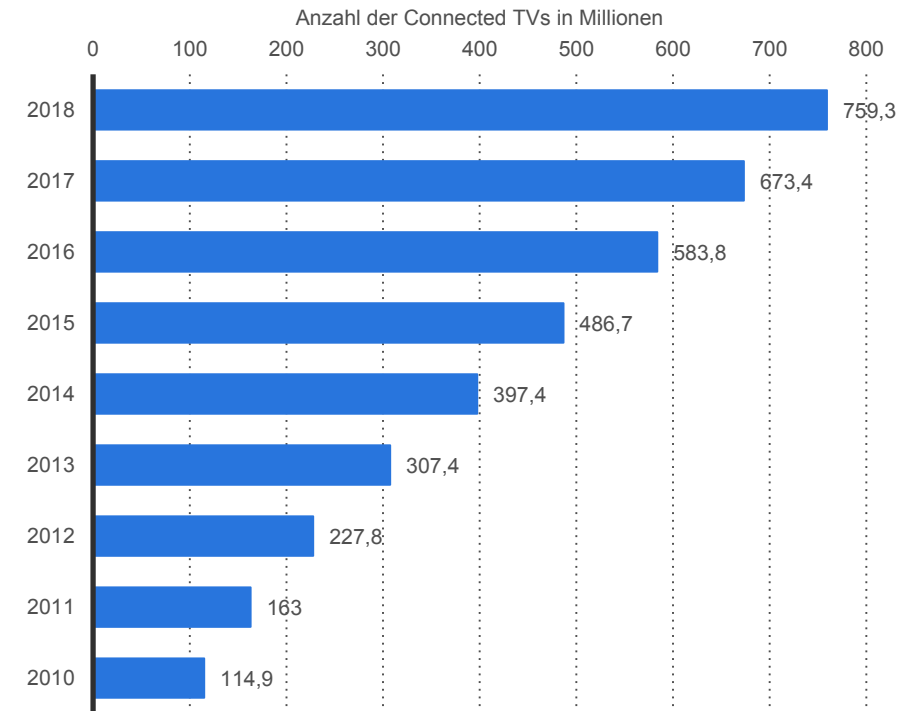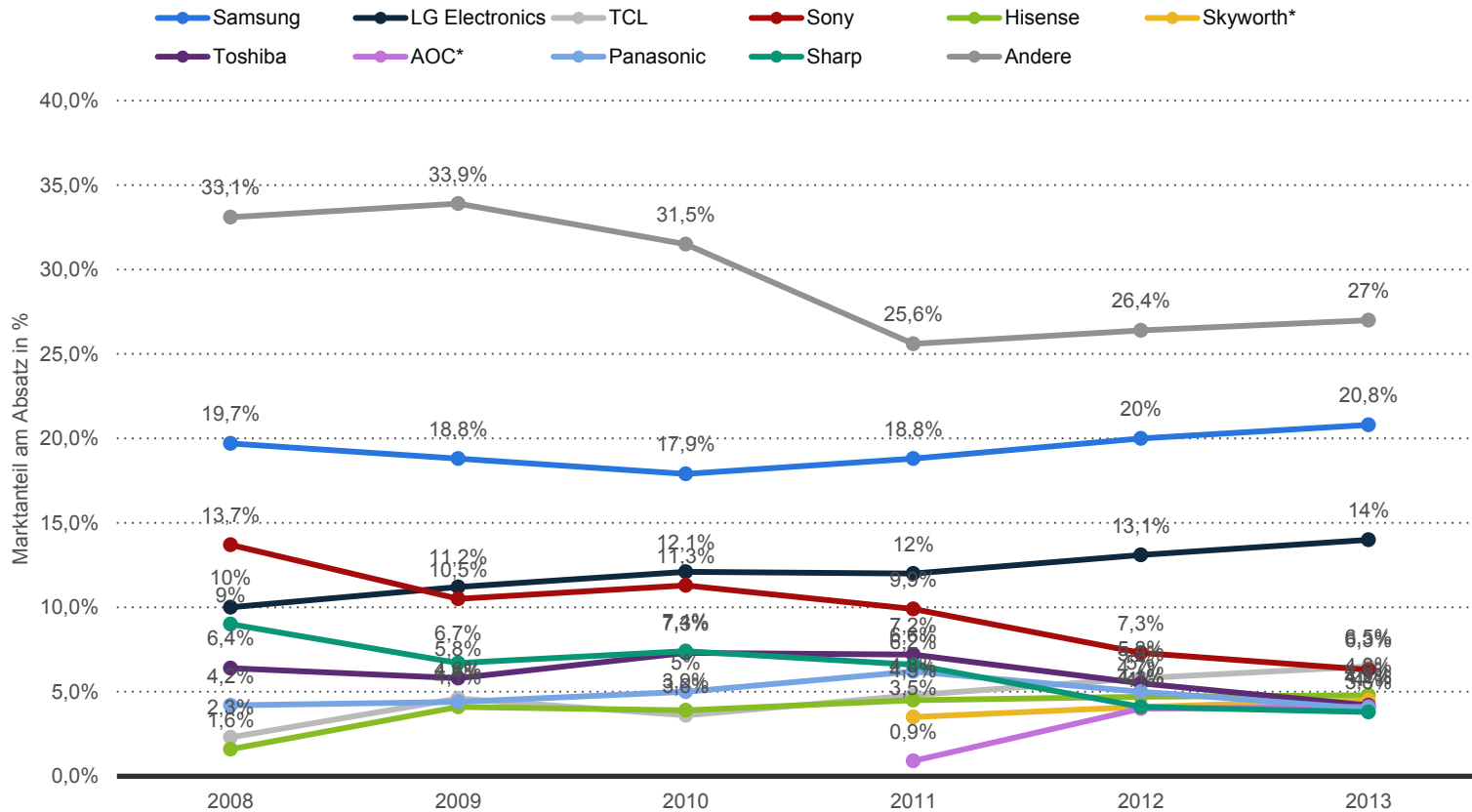
I assume it is an upcoming trend!

Which clients in <u>Frontend Layer</u> are most used?

1. TV screens – stays far away on top!
2. Desktop computer – gradient.
3. Laptop – upcoming.
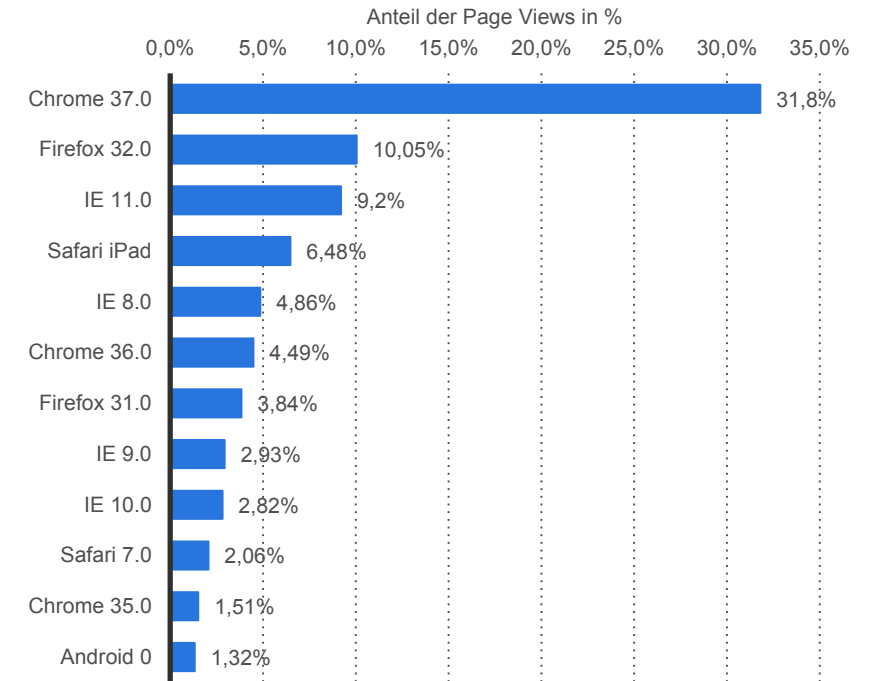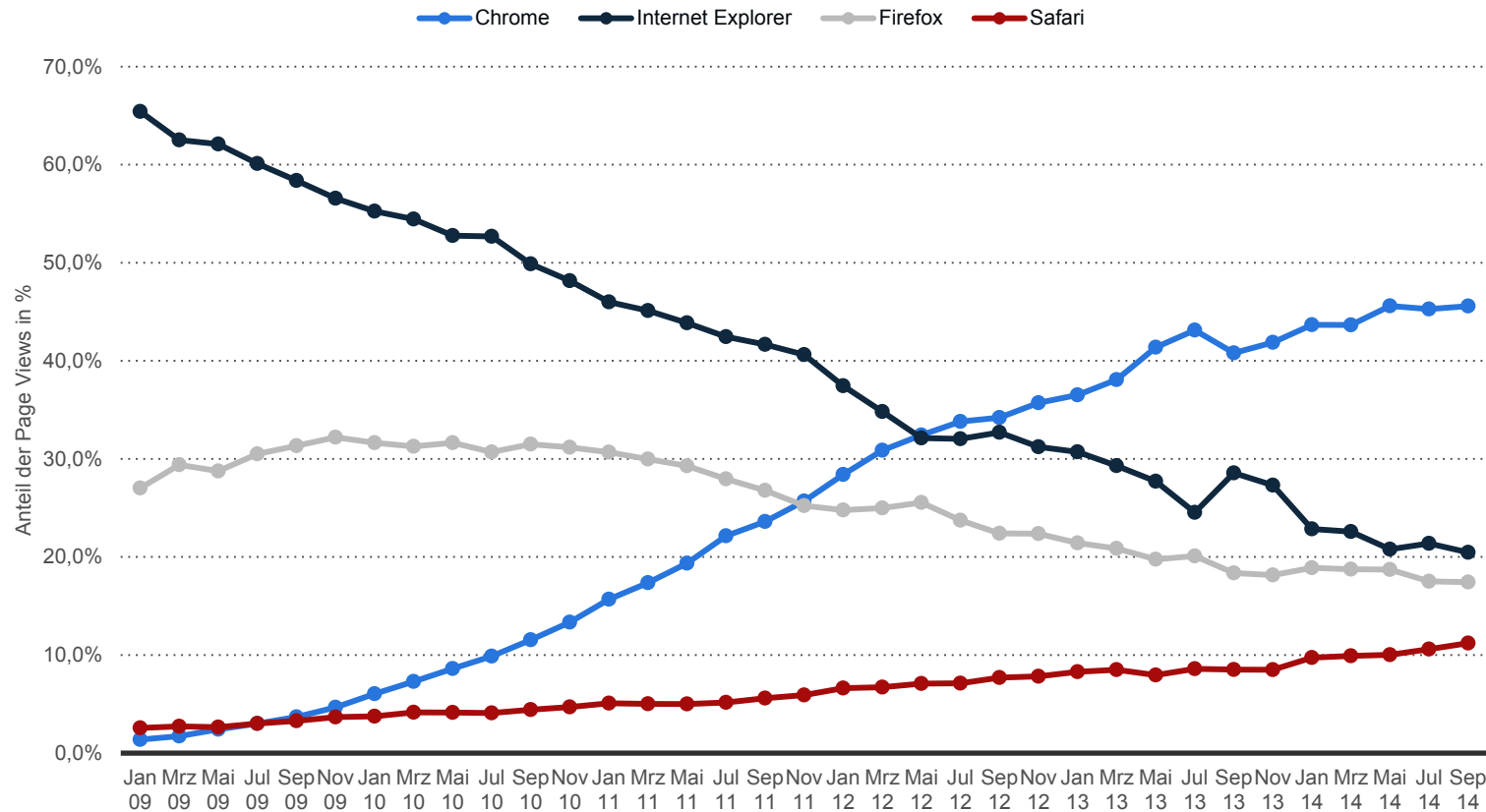4. Smartphone – upcoming.
5. Tablet – upcoming.

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TV manufacturer currency worldwide & selling forecast to 2018

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Legend: Samsung, LG Electronics, TCL, Sony, Hisense, Skyworth*, Toshiba, AOC*, Panasonic, Sharp, Andere

Left chart — Marktanteil am Absatz in % (2008–2013):

- Andere: 33,1% / 33,9% / 31,5% / 25,6% / 26,4% / 27%
- Samsung: 19,7% / 18,8% / 17,9% / 18,8% / 20% / 20,8%
- Sony: 13,7% / 10,5% / 11,3% / 9,9% / 7,3% / 6,5%
- LG Electronics: 10% / 11,2% / 12,1% / 12% / 13,1% / 14%
- Sharp: 9% / 6,7% / 7,3% / 6,6% / 5,8% / 4,8%
- Toshiba: 6,4% / 5,8% / 5% / 6,2% / 4,7%
- Panasonic: 4,2% / 4,1% / 3,8% / 4,3% / 4%
- Hisense: 2,3% / — / 3,5%
- Skyworth*: 1,6% / 3,8% / 0,9%
- AOC*: 0,9%

Right chart — Anzahl der Connected TVs in Millionen:

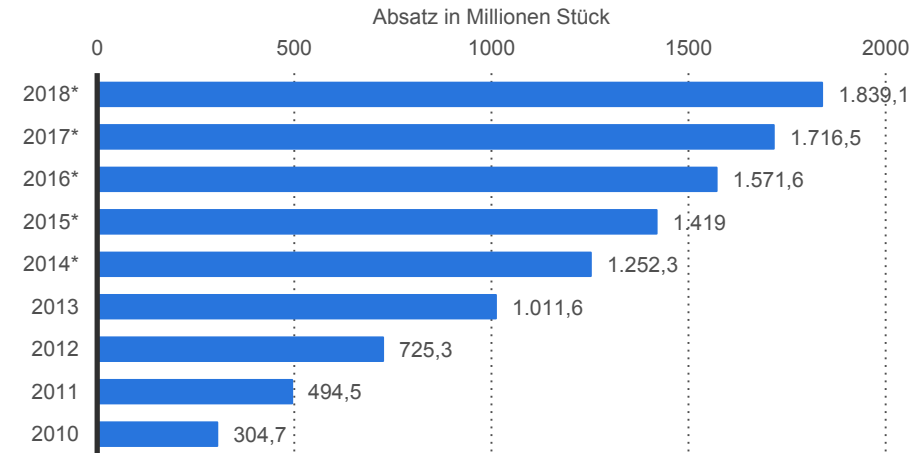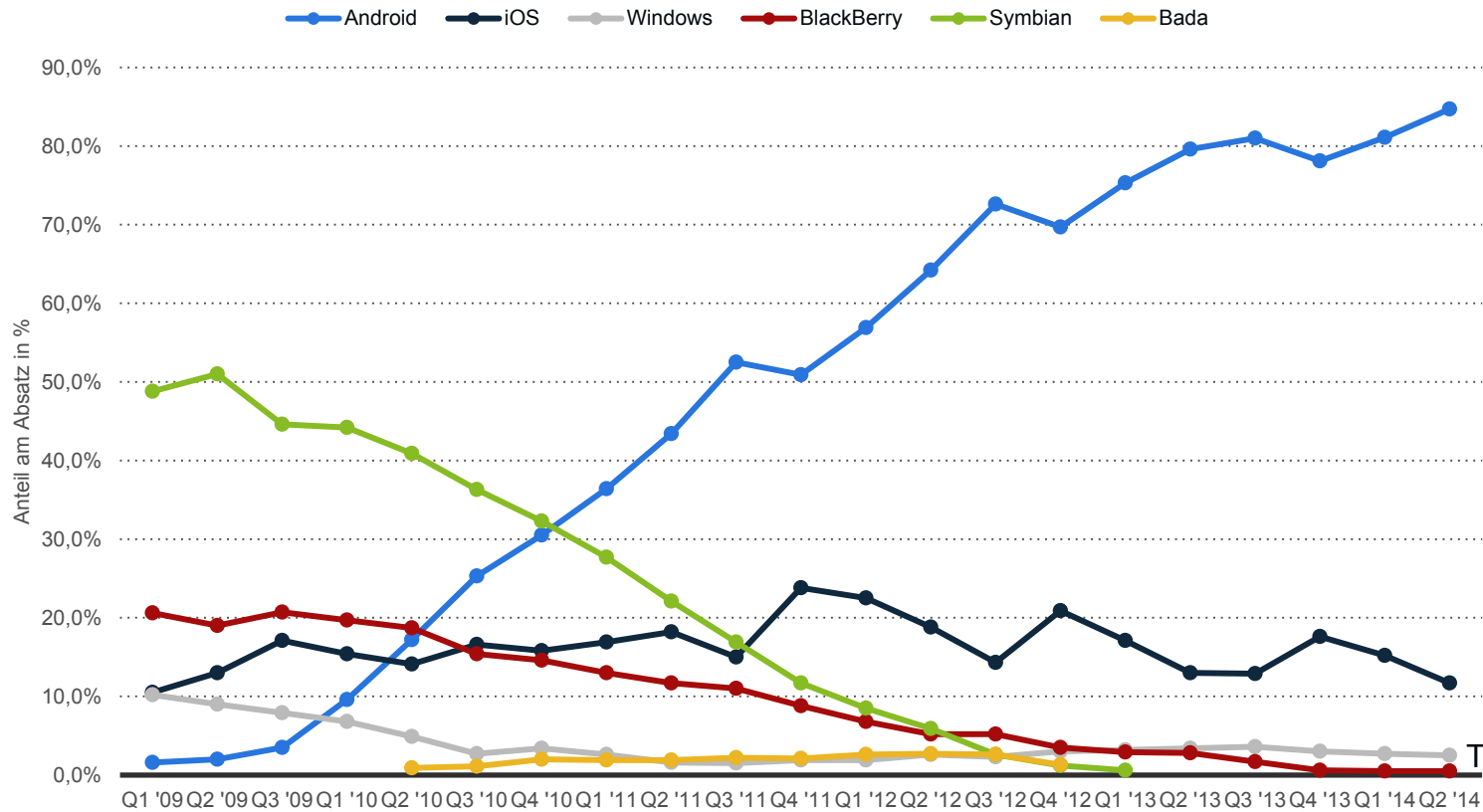| Jahr	Millionen
2018	759,3
2017	673,4
2016	583,8
2015	486,7
2014	397,4
2013	307,4
2012	227,8
2011	163
2010	114,9

http://de.statista.com/statistik/daten/studie/151532/umfrage/marktanteile-der-lcd-fernseher-hersteller-in-2007-weltweit
http://de.statista.com/statistik/daten/studie/282561/umfrage/prognose-zur-anzahl-der-connected-tvs-weltweit

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Chrome — Internet Explorer — Firefox — Safari

Anteil der Page Views in %

Browser	Value
Chrome 37.0	31,8%
Firefox 32.0	10,05%
IE 11.0	9,2%
Safari iPad	6,48%
IE 8.0	4,86%
Chrome 36.0	4,49%
Firefox 31.0	3,84%
IE 9.0	2,93%
IE 10.0	2,82%
Safari 7.0	2,06%
Chrome 35.0	1,51%
Android 0	1,32%

http://de.statista.com/statistik/daten/studie/157944/umfrage/marktanteile-der-browser-bei-der-internetnutzung-weltweit-seit-2009
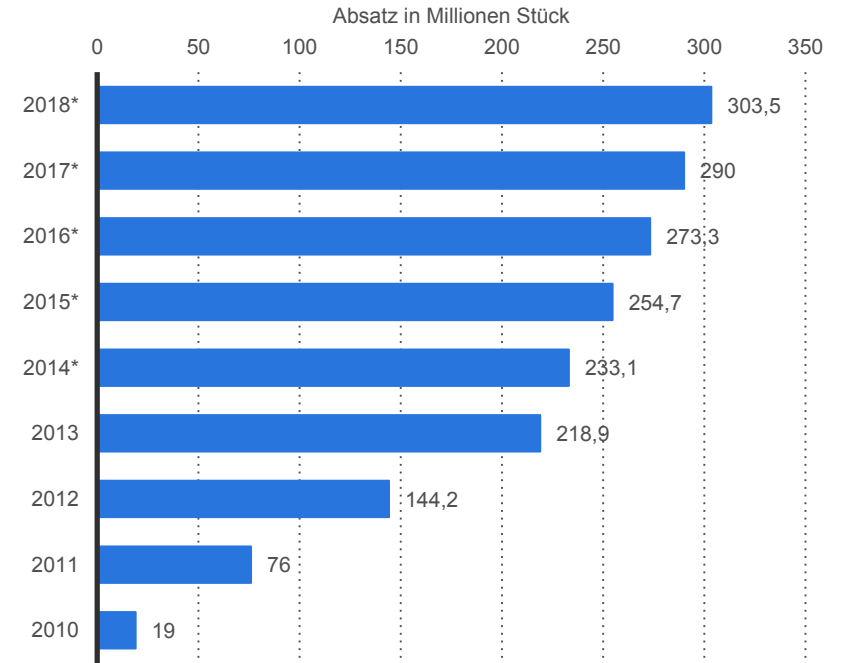http://de.statista.com/statistik/daten/studie/158095/umfrage/meistgenutzte-browser-im-internet-weltweit

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Smartphone OS currency worldwide & selling forecast to 2018

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Think every single customer can create a word of mouth.

http://de.statista.com/statistik/daten/studie/73662/umfrage/marktanteil-der-smartphone-betriebssysteme-nach-quartalen
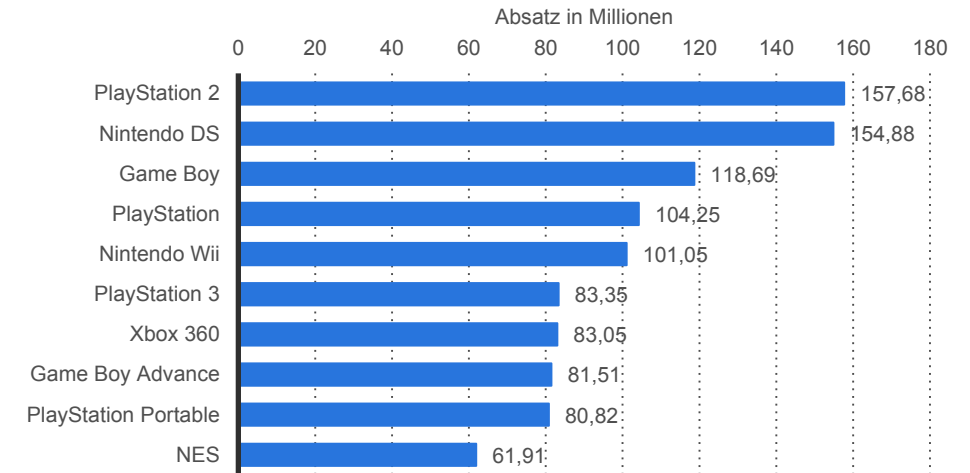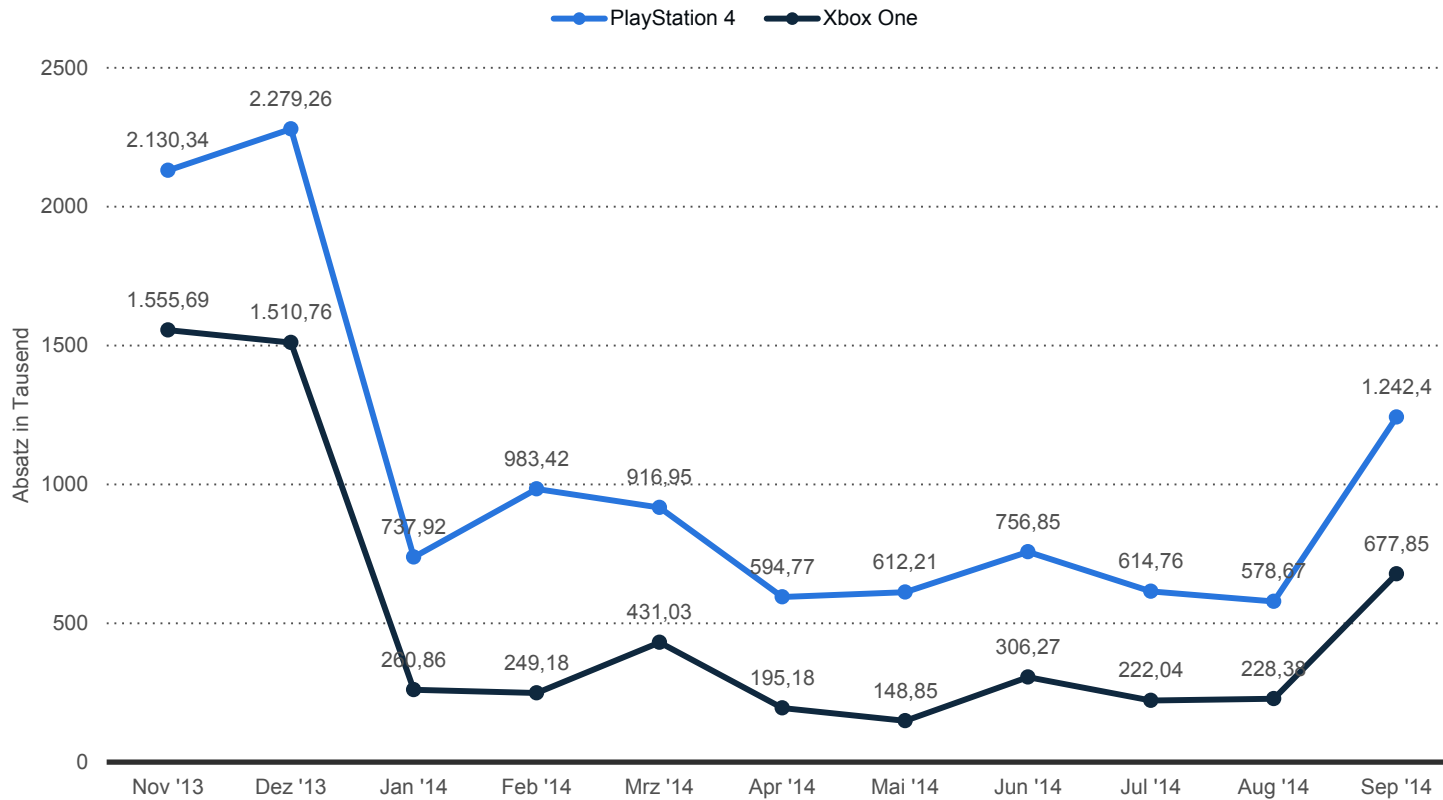http://de.statista.com/statistik/daten/studie/12865/umfrage/prognose-zum-absatz-von-smartphones-weltweit

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Tablets OS currency worldwide & selling forecast to 2018

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Legend: Apple iOS — Android — Windows* — Andere

Left chart Y-axis: Anteil am Tablet-Absatz in % (0,0% – 120,0%)

X-axis: Q2 '10, Q3 '10, Q4 '10, Q2 '11, Q3 '11, Q4 '11, Q1 '12, Q2 '12, Q3 '12, Q4 '12*, Q1 '13*, Q2 '13*, Q4 '13*, Q1 '14*, Q2 '14*

Right chart: Absatz in Millionen Stück (0 – 350)

Year	Absatz in Millionen Stück
2018*	303,5
2017*	290
2016*	273,3
2015*	254,7
2014*	233,1
2013	218,9
2012	144,2
2011	76
2010	19

Think every single customer can create a word of mouth.

http://de.statista.com/statistik/daten/studie/196140/umfrage/marktanteile-der-fuehrenden-betriebssysteme-im-tablet-markt-seit-2010
http://de.statista.com/statistik/daten/studie/165462/umfrage/prognose-zum-weltweiten-absatz-von-media-tablets

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Game consoles currency worldwide & PS4:Xbox One selling p.m.

●— PlayStation 4   ●— Xbox One

Absatz in Tausend

2500 —
2000 —
1500 —
1000 —
500 —
0 —

2.130,34
2.279,26
1.555,69   1.510,76
737,92
983,42
916,95
594,77   612,21
756,85
614,76   578,67
1.242,4
677,85
260,86   249,18   431,03   195,18   148,85   306,27   222,04   228,38

Nov '13   Dez '13   Jan '14   Feb '14   Mrz '14   Apr '14   Mai '14   Jun '14   Jul '14   Aug '14   Sep '14

Absatz in Millionen

0   20   40   60   80   100   120   140   160   180

PlayStation 2	157,68
Nintendo DS	154,88
Game Boy	118,69
PlayStation	104,25
Nintendo Wii	101,05
PlayStation 3	83,35
Xbox 360	83,05
Game Boy Advance	81,51
PlayStation Portable	80,82
NES	61,91

http://de.statista.com/statistik/daten/studie/311554/umfrage/weltweiter-absatz-der-playstation-4-und-xbox-one-pro-monat
http://de.statista.com/statistik/daten/studie/160549/umfrage/anzahl-der-weltweit-verkauften-spielkonsolen-nach-konsolentypen

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Connected TV platforms

- Samsung[1, 3, 4]
- LG[1, 3, 4]
- Sony[1, 3]
- Panasonic[1, 3]
- Philips[1, 3]
- Toshiba[1, 3]

Game consoles

- Sony PlayStation 3 & 4[1]
- Xbox 360 & One[1]
- Wii[1]

Smartphones

- iOS[1, 2, 3]
- Android[1, 2, 3]
- Windows Phone 8[1, 2, 3]
- Symbian[1]
- BlackBerry[1]

Media player boxes

- Boxee Box[1]
- Roku Box[1]
- Android boxes[1]

PC/Mac

- Firefox[1, 2, 3]
- Chrome[1, 2, 3]
- Internet Explorer[1, 2, 3]
- Safari[1, 2, 3]

Tablets

- iOS[1, 2, 3]
- Android[1, 2, 3]
- Windows 8[1, 2, 3]

Caption: [1]Support via API, [2]SDK available, [3]Product Client/App available, [4]Including Blu-ray players of same platform

Introducing the service OTT SWIPE ™ (OTT SWIPE ™ UX as a Service)

Idea of becoming a pioneer. Be the first, be omnipresent and provide UX!

Rumble in the OTT jungle

1. The OTT service should not depend either on platform nor CE device.
2. The OTT service should have an impressive UX.

Establish a customer feeling: "The OTT service is certainly available for the new CE device or platform."

Do intrinsic market and trend research and provide the OTT service on common previously mentioned platforms and CE devices at the time it's getting released without the need of additional service supply devices. Just out of the box.

How to accomplish this idea in such a CE device, platform and version jungle?

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Introducing the service OTT SWIPE ™ (OTT SWIPE ™ UX as a Service)

Helping to become a pioneer. Be the first, be omnipresent and provide UX!

Siemens helps making video service implementation on <u>Frontend Layer</u> more easy with a platform and device crossing standard language through SDK's.

With OTT SWIPE ™ UX as a Service, Siemens provide SDK's for content consumption in a UX and standardized way on major platforms. Well known usability for confidence and reliability across CE devices in a more easy way.

The service act as a SDK-/API-speaking Middleware to provide.

UX content consumption
- Move content between devices (The Swipe gesture)
- Remote control between devices (Trick Play)

UX place shifting
Automatic device detection algorithm (Location profiling)

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USP = UX / at a glance

(UX) Automatic device detection	(UX) The Swipe gesture, and Trick Play	(UX) Place shifting	+ Guided implementation
Create location profiles for user's CE devices and places. The service estimates automatically which CE device the user likes to control. Two phase pairing mechanism. after initial pairing. 90% accuracy for later pairing.	Finger swap to move content between CE devices – crossing CE device borders with a finger swap. Instead of a button in the app to transfer content. Possible standardized UX for OTT content transfer and control functionalities.	Automatic device coupling / pairing for seamless place shifting and remote control functionalities. 1. Initial pairing 2. Later pairing for seamless place/device shifting.	Guided implementation of proven well known UX functionalities on common CE devices through SDK's and API.

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Introducing the service OTT SWIPE ™ (OTT SWIPE ™ UX as a Service)

(UX) Automatic device detection and place shifting

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(UX) Automatic device detection & place shifting	How do we accomplish that feature?
Create location profiles for user's CE devices and places.	Two phase pairing. While <u>Initial Pairing</u> phase the TV logs in and send TV-id to Siemens Backend. Simultaneous the location parameters are stored on client-side with TV-id. e.g. different location parameters.
The service estimates automatically which CE device the user likes to control.	•core location framework •MAC Address of Access point •WLAN SSID •Compass direction •Ultrasound (some circumstances) •Counter / intrinsic learning to improve accuracy *(Patented algorithm combine 17 different location parameters)*
Two phase pairing mechanism. after initial pairing. 90% accuracy for later pairing.	<u>Later Pairing</u> all parameters were evaluated if client location matches an Online TV with one local stored location profile.

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(UX) The Swipe gesture and Trick Play

(UX) The Swipe gesture, and Trick Play

Finger swap to move content between CE devices – crossing CE device borders with a finger swap. Instead of a button in the app to transfer content.

Possible standardized UX for OTT content transfer and control functionalities.

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"Award-winning OTT Swipe user experience."

"With Siemens OTT SWIPE ™ *UX as a Service we bring the award-winning* OTT SWIPE ™ *user experience to established OTT services. Now your customers can swipe content between phones, tablets and the TV with a flick of their finger. And with simple APIs, integration is a matter of just a few days,"*

Stefan Jenzowsky (former Head of Media Business at Siemens Convergence Creators)

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Thanks for your attention!

Any open questions?

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