

The SAT>IP standard: Live TV on IP devices in the home

Thomas Wrede

Venice, March 15, 2016

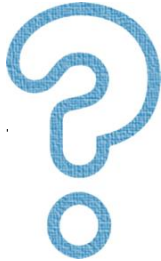


How to bring Broadcast TV into the IP world?

DVB-T[™]
DVB-T2[™]

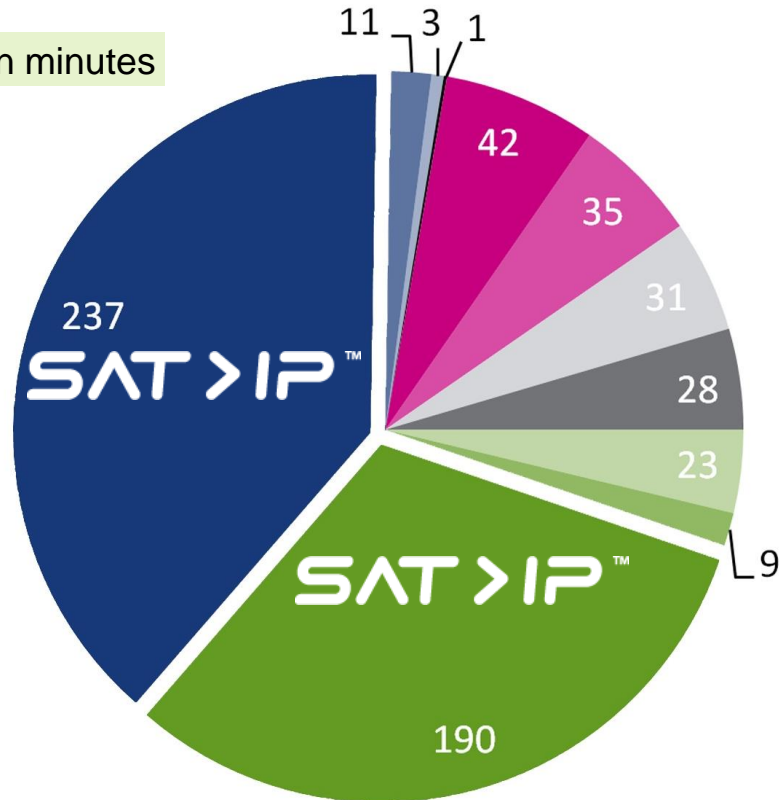
DVB-S[™]
DVB-S2[™]
DVB-S2X[™]

DVB-C[™]
DVB-C2[™]



Average daily media usage (Germany 2015)

In minutes



- CD/mp3
- Music streaming
- Radio
- TV
- Online-Video
- DVD/BluRay
- Cinema
- Internet News etc.
- Games
- Newspapers, Magazines,...
- Books

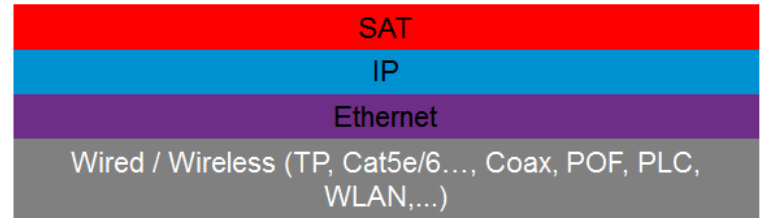
Source:



Concept

Convert broadcast signals to IP after reception

- ▲ No need to simulcast services in IP
- ▲ Compatible with all existing on-air services
- ▲ IP becomes an Abstraction Layer
- ▲ Broadcast programmes can now be carried over **any IP network**
- ▲ Distribution automatically benefits from latest IP technology developments
 - Powerline (PLC), Wireless, Optical, Copper,...



Linear broadcast services become available on more devices

- ▲ Modern devices do not have a satellite tuner
- ▲ Take the reception front-end into a server device
- ▲ Satellite reception then becomes a pure software application



What is SAT>IP ?

SAT>IP is a **Communication Protocol** for (satellite) devices communicating via IP

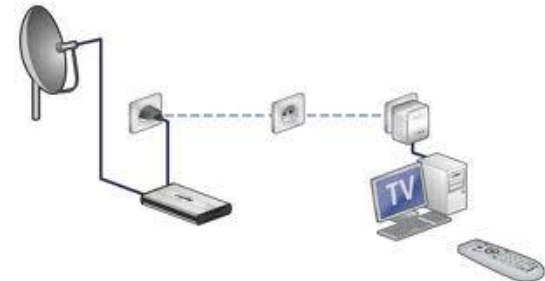
- ▲ Open protocol based around existing standards
- ▲ Work done in coordination with SES customers
- ▲ Since March 2014 a European Standard EN 50585
- ▲ Protocol supports both vertical and horizontal operator markets



Transparent for different CA solutions / comparable to today's satellite distribution

SAT>IP is not a Device Specification

Leaves industry coming up with particular device implementations



Advantages for consumers

▲ Watch TV in any room

- No need for an antenna cable (use Powerline / Wireless /..)
- No need for an extra coaxial cable based in-home distribution network

▲ Watch TV on Mobile Devices

▲ Best picture quality - in SD, HD and beyond



SAT > IP

(Illustration source: Panasonic)

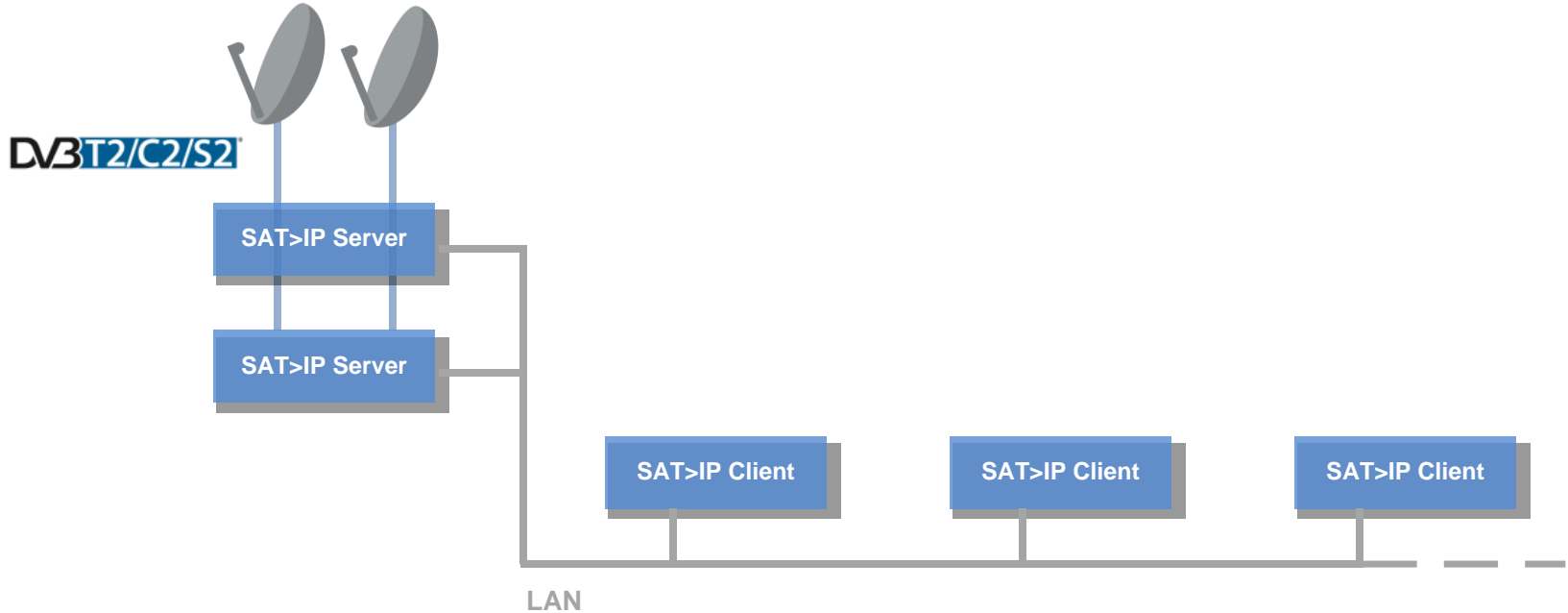


SES[▲]

SAT > IP TM

Technology

SAT>IP client/server architecture



Media Protocols

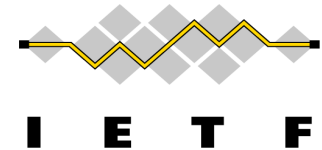


SAT>IP protocol

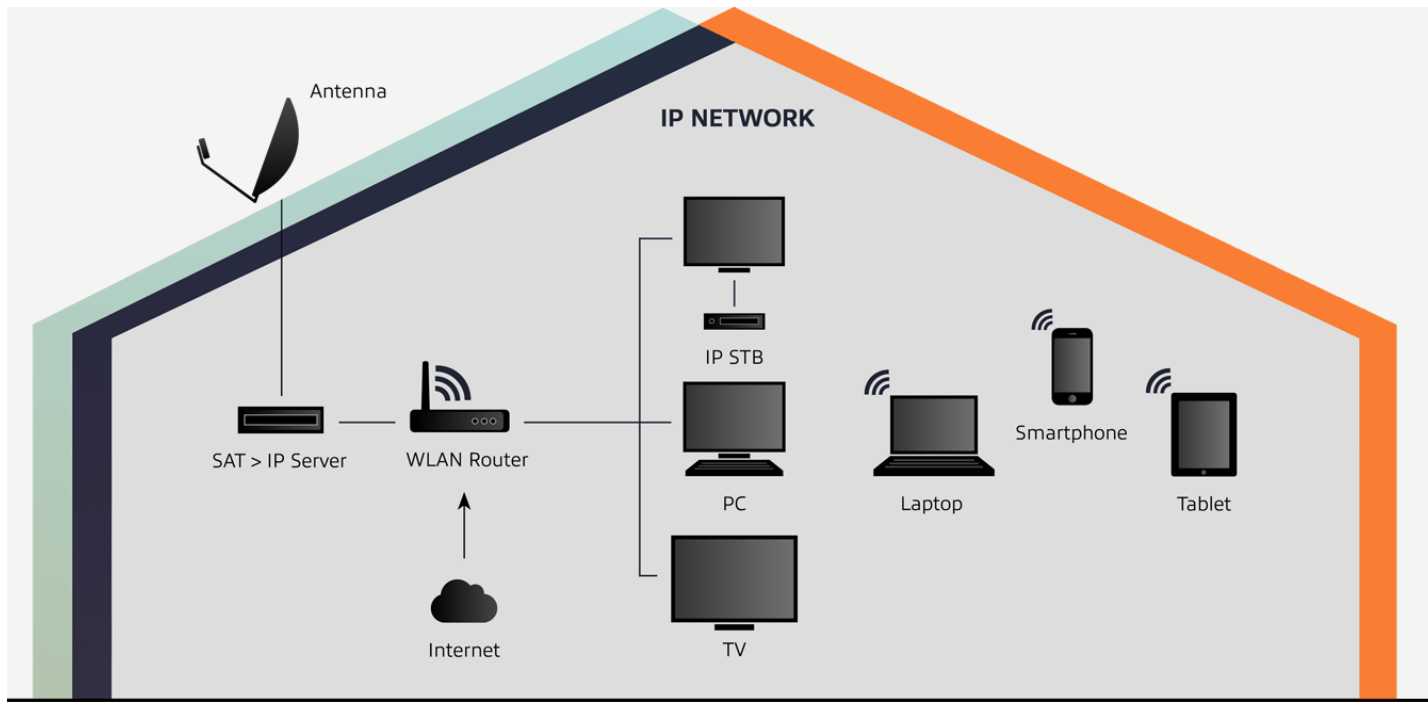
Based as far as possible on existing standards:

- ▲ Addressing: **DHCP and Auto-IP**
- ▲ Discovery: **SSDP**
- ▲ Description: **XML**

- ▲ Session Setup / Control: **RTSP / (HTTP)**
- ▲ Streaming: **RTP / (HTTP)**
- ▲ Real-Time Session Information: **RTCP**



Typical SAT>IP installation



Standard for Live Broadcast TV via IP



SAT > IP™

Content Protection



Scenarios supported with today's products

1. Smart card based CA

SAT>IP client must have embedded CA or CI

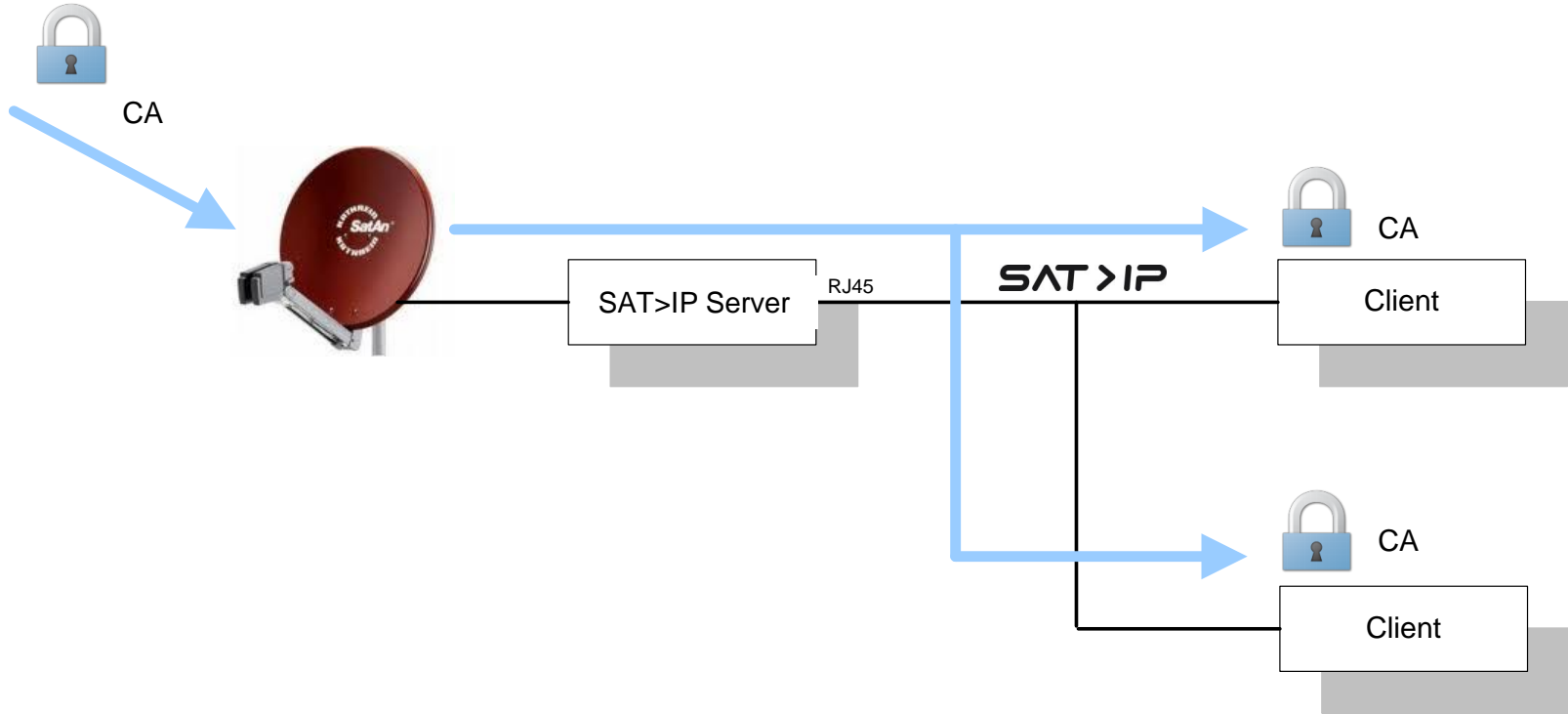


2. Cardless CA

For greenfield platforms



SAT>IP is always transparent to CA



SAT>IP clients with embedded CA or CI+



SAT > IP™

Panasonic

KATHREIN



TELESTAR
digital tv, multimedia & more

ZINWELL

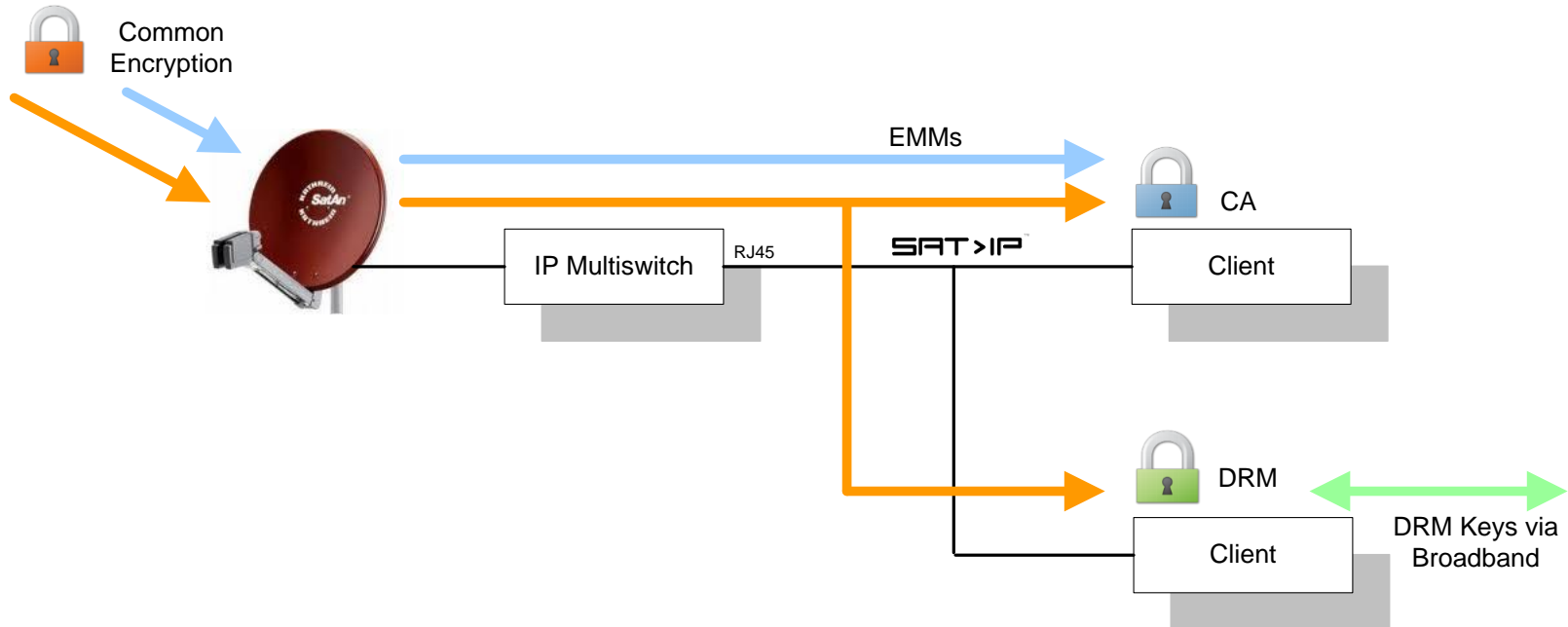
What about broadcast clients without smartcard?



Software decryption of DVB CSA
not possible for license reasons....

Cardless CA

Cardless with simulcrypt (other than CSA):



SAT>IP Operator Extensions

The reality: CA implementations are operator specific

▲ CA to DRM Transcrypting

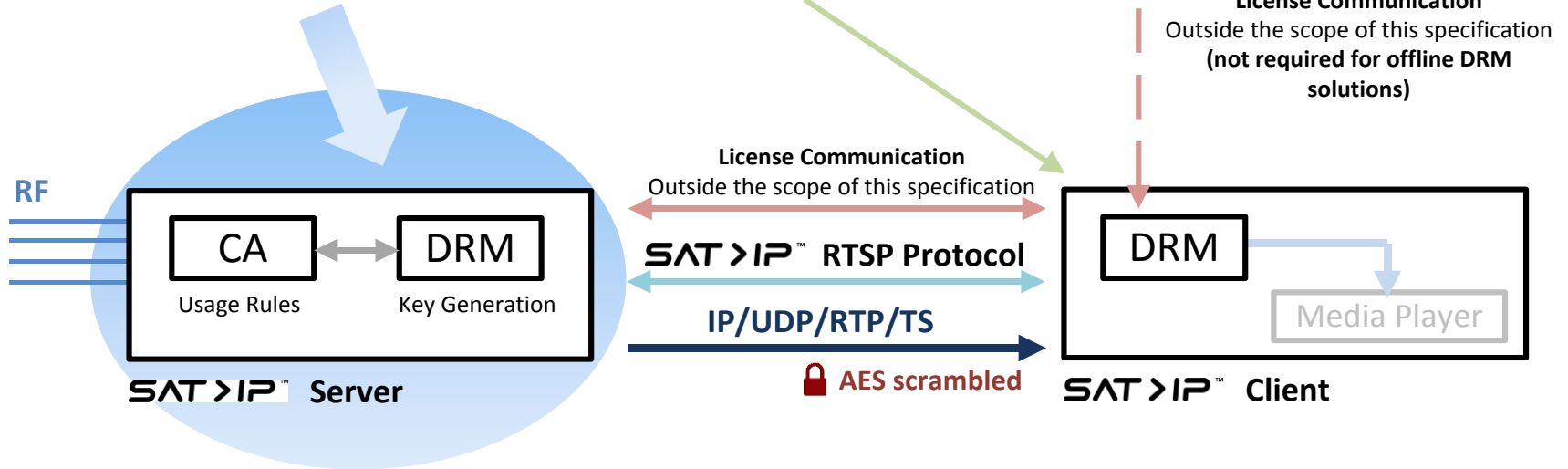
Extendable Framework for supporting different CA to DRM implementations

▲ Video and Audio Transcoding

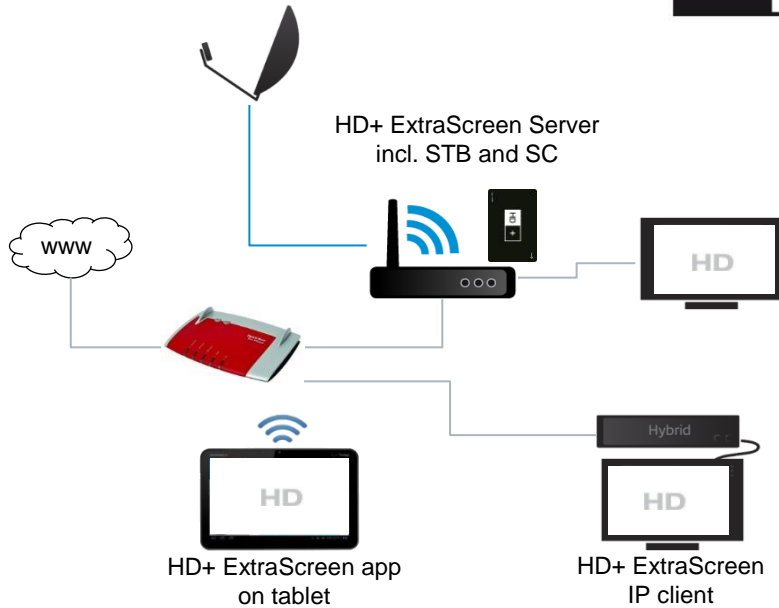
CA to DRM transcrypting framework

SAT>IP server does transryption from proprietary CA to DRM

SAT>IP server announces its capabilities to clients



Practical implementation: HD+ ExtraScreen



- ▶ Activated HD+ smartcard in HD+ ExtraScreen server with integrated STB
- ▶ ExtraScreen server connected to
 - Internet
 - Satellite
 - TV
- ▶ Tablet and IP client connected to home network
- ▶ Registration for HD+ ExtraScreen under www.hd-plus.de

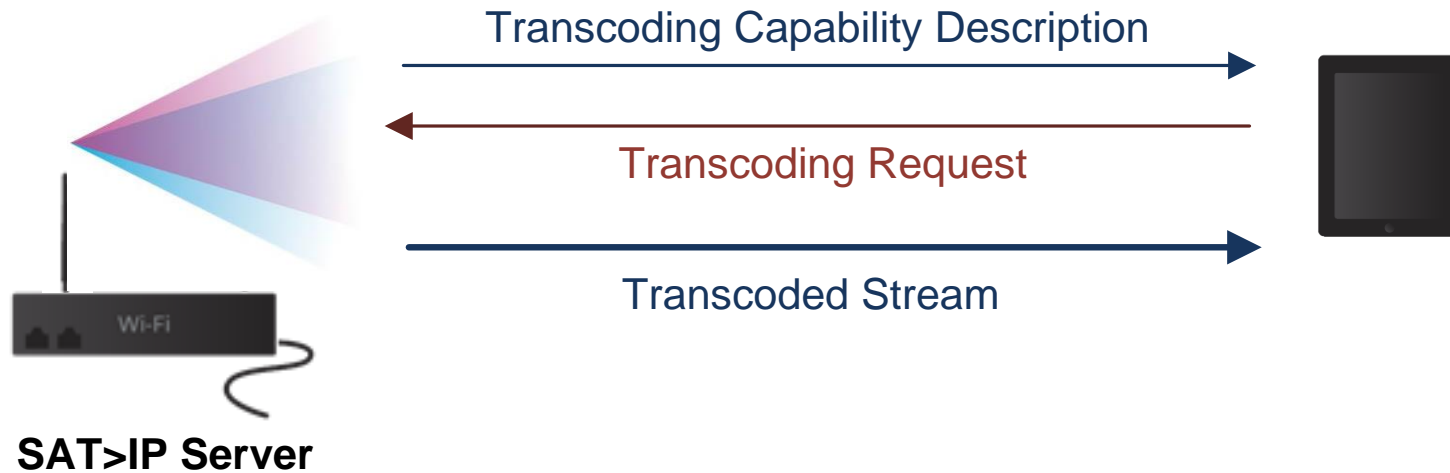
SAT>IP Operator Extensions

▲ CA to DRM Transcrypting

Extendable Framework for supporting different CA to DRM implementations

▲ Video and Audio Transcoding

Video and audio transcoding



- ▲ Adds option for Client initiated transcoding
- ▲ Server initiated transcoding was already available
- ▲ Main purpose: minimize bitrates on WLAN networks

SAT > IPTM

Products



SAT>IP: 45 partners / 75 products

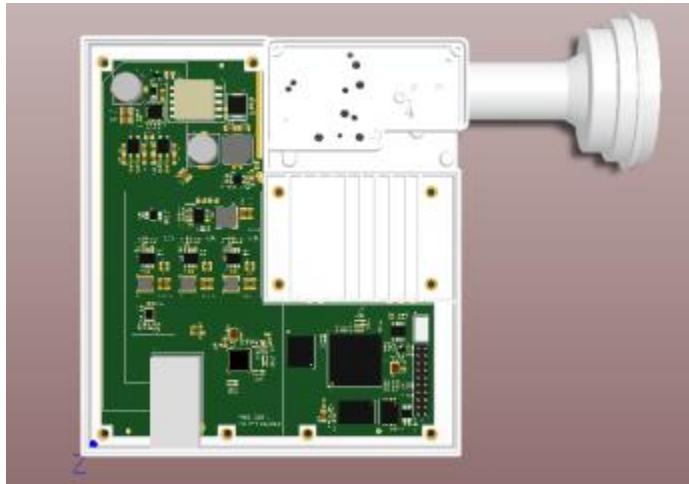


1st gen SAT>IP server (4 front-ends with STi 7108)



Developed in 2011 by FTA Communication (Inverto) for SES

1st gen IP-LNB



RJ45 (GbE)
Home Network

SES[▲]
your satellite company

ALI[®]

rt
inverto.tv

MAXLINEAR

- The IP-LNB incorporates 8 tuners and demodulators capable of serving up to 8 IP devices on the in-home network with high quality satellite programmes

2nd gen IP-LNB



- ▲ Reduced size
- ▲ Wideband legacy LNB outputs
- ▲ Higher backend throughput



2nd gen 16- and 32 channel SAT>IP servers



Unitron 9830 + 5400

 johansson®

For larger SMATV installations

SAT>IP System On a Chip

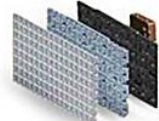
Broadcom BCM4562



Auto-pointing SAT>IP antenna



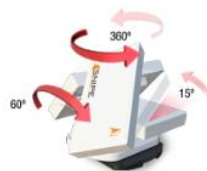
SNiPE AIR



1 SELFSAT flat antenna technology



2 Simple operation external controller with 4 buttons



3 Automatic 3axes movement (including skew adjustment)



SAT > IP
CERTIFIED



Panasonic UHD OLED TV (SAT>IP server + client)

Panasonic TX-65CZW954



Panasonic

24 channel SAT>IP server



H/V Wideband LNB input

GigE interface

24 channels

Throughput sustains 24
UHD services!

ZINWELL

Now: Reaching new devices



apple tv

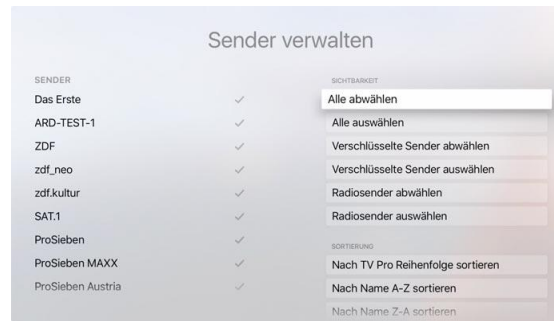
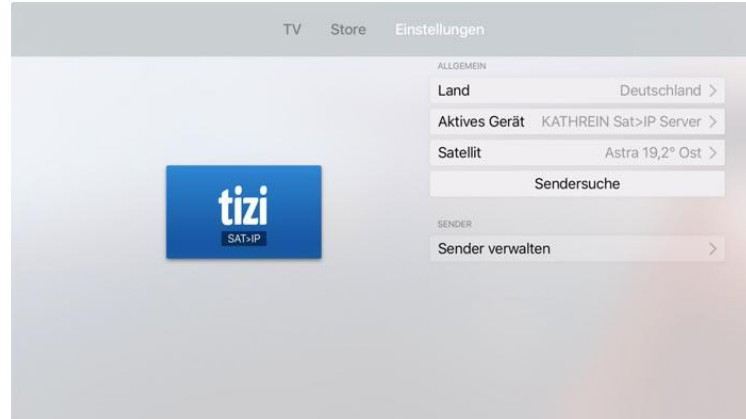


androidtv



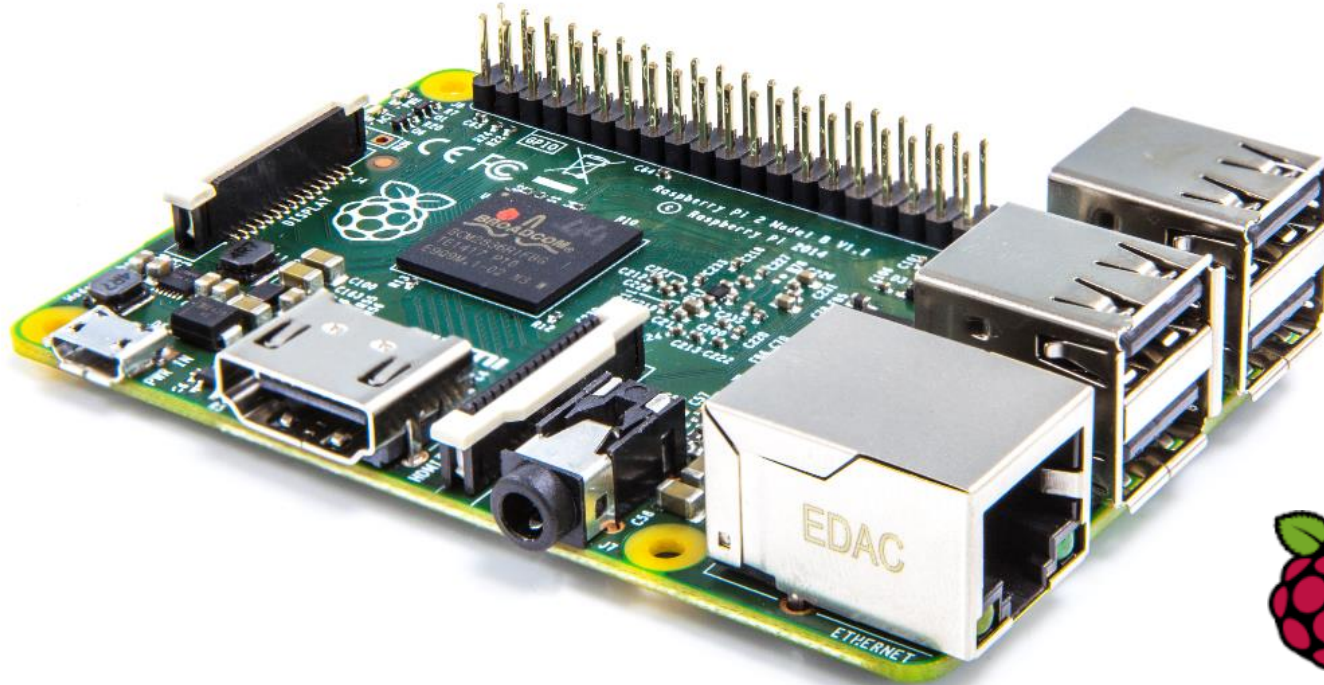
amazon fireTV

1st SAT>IP App on AppleTV



RaspberryPi as SAT>IP server and client

MLDHD



VLC 3.0 with integrated SAT>IP client



SAT > IP

The logo for SAT > IP, featuring the letters 'SAT' in a bold, black, sans-serif font, followed by a right-pointing chevron '>', and then the letters 'IP' in the same font, with a small 'TM' trademark symbol to the right. The logo is positioned over a background of a snowy mountain peak under a blue sky with scattered clouds. A large, diagonal, semi-transparent graphic element in shades of purple and blue is overlaid on the left side of the image.

SAT > IPTM

Compliance Testing

SAT>IP Alliance

Next steps

Compliance Testing

- ▲ SAT>IP interoperability is guaranteed by passing the SAT>IP compliance testing procedure

SAT > IP™

- ▲ Compliance testing in the past was carried out by SES and was recently handed over to



Labwise Oy

Viinikankatu 1 C
FI-33100 Tampere
Finland

Tel: +358 (0)3 214 0010
Fax: +358 (0)3 214 0020

Email: info@labwise.fi

Pasi Toiva
Managing Director

Mobile: +358 (0)40 722 0773

SAT>IP Alliance founding members



eutelsat

hispasat



Panasonic

NAGRA
KUDELSKI GROUP

MAXLINEAR

ALI®

Scope

Promote and further develop SAT>IP

- Marketing activities
- Compliance testing and certification
- Liaison with FreeTV Alliance and DVB (tbd)
- Working- /project groups

Luxembourg based non-profit organisation

Mainly targeting satellite operators and manufacturers

Membership fee EUR 5.000 (per annum)



DIE FOLGENDEN 2014ER PANASONIC TV-SERIEN SIND ALS SAT-IP CLIENT ZERTIFIZIERT:

	AW764 Medien set 80 Zoll Flachbildfernseher TS-80A0764 142" x 78,5 cm TS-80A0864 98" x 144 cm TS-80A0964 98" x 132 cm
	AW774 Medien set 80 Zoll Flachbildfernseher TS-80A0774 98" x 139 cm TS-80A0874 42" x 77 cm TS-80A0974 38" x 66 cm
	AW864 Medien set 80 Zoll Flachbildfernseher TS-80A0864 88" x 131 cm TS-80A0964 98" x 132 cm TS-80A1064 42" x 77 cm TS-80A1164 42" x 76 cm TS-80A1264 38" x 66 cm
	AW874 Medien set 80 Zoll Flachbildfernseher TS-80A0874 98" x 139 cm TS-80A0974 42" x 77 cm TS-80A1074 38" x 66 cm TS-80A1174 38" x 66 cm

* Standard-Verfügbare Modelle
** Standard-Verfügbare Modelle (Tabelle 1)

Panasonic

Wieder Sie für Facebook und Youtube Deutschland
wie haben Sie uns auf
www.panasonic.de
www.panasonic.it
www.panasonic.com
www.panasonic.co.uk

www.panasonic.de

Next steps

- ▲ Further enlarge the universe of SAT>IP clients and servers
- ▲ Complete ongoing field trial in the German market
- ▲ Demonstrate CA-to-DRM implementations
- ▲ Get SAT>IP Alliance into full working mode
 - Coordinate and step up marketing efforts
 - Presence at major trade shows
- ▲ Considering a transfer of the SAT>IP standard into the DVB
 - Liaison between SAT>IP Alliance and DVB

For more information: www.satip.info

SAT>IP™

TECHNOLOGY

PRODUCTS

SUPPORTERS

RESOURCES

NEWS



Highest quality live satellite TV

Distribute all existing live satellite content (television, radio and data) around the home or within a company at premium quality. Similar to IPTV, but with better picture quality and more choice.



via IP networks

Use any physical network capable of carrying IP packets: ethernet cable, powerline, wireless, optical cable, etc.



on any device*

Use a Free-To-Air or Operator Set-Top-Box (subject to adaptability for SAT>IP)™, a Connected TV with SAT>IP firmware™, PCs, tablets, smartphones, mediaplayers™

*subject to availability

Thank you!

STAY IN TOUCH



www.ses.com

Thomas Wrede

VP Reception Systems

thomas.wrede@ses.com