New Tools for Commercial Video over IP

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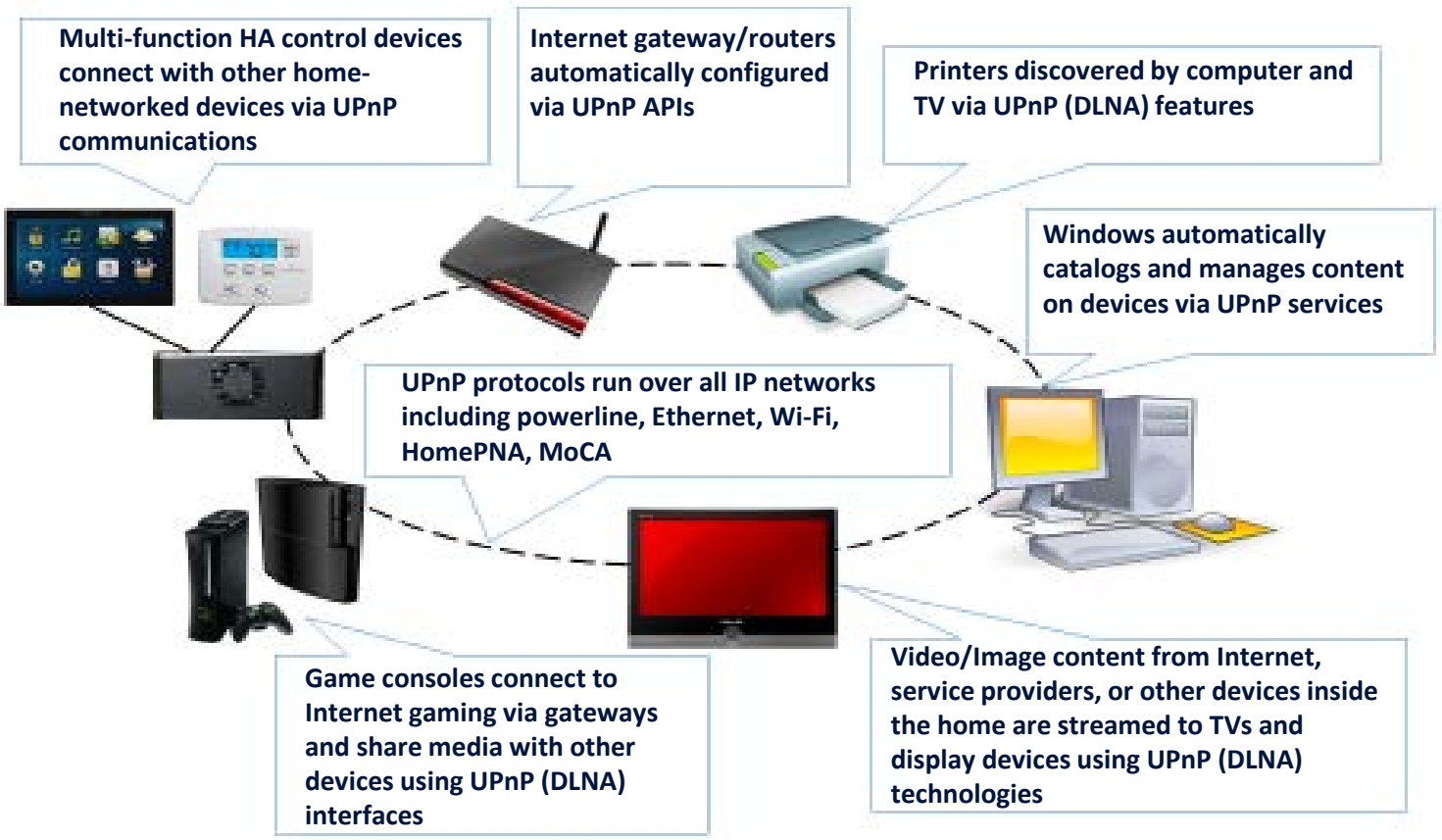
UPnP Is Used in Billions of Devices

- UPnP has been connecting things for a dozen years with **seamless service discovery and control**



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What is UPnP infrastructure

Existing Open Standards

- Billions of deployed devices
  - Smart TVs, Gateways, Mobile Devices, Game Consoles, PCs
- Existing Device Control Protocols for AV distribution
  - MediaServer
  - MediaRenderer
  - RemoteUI
- Existing Device Control Protocols for home automation
  - HVAC, light, security camera, …
  - Sensor, Device, and Energy Management

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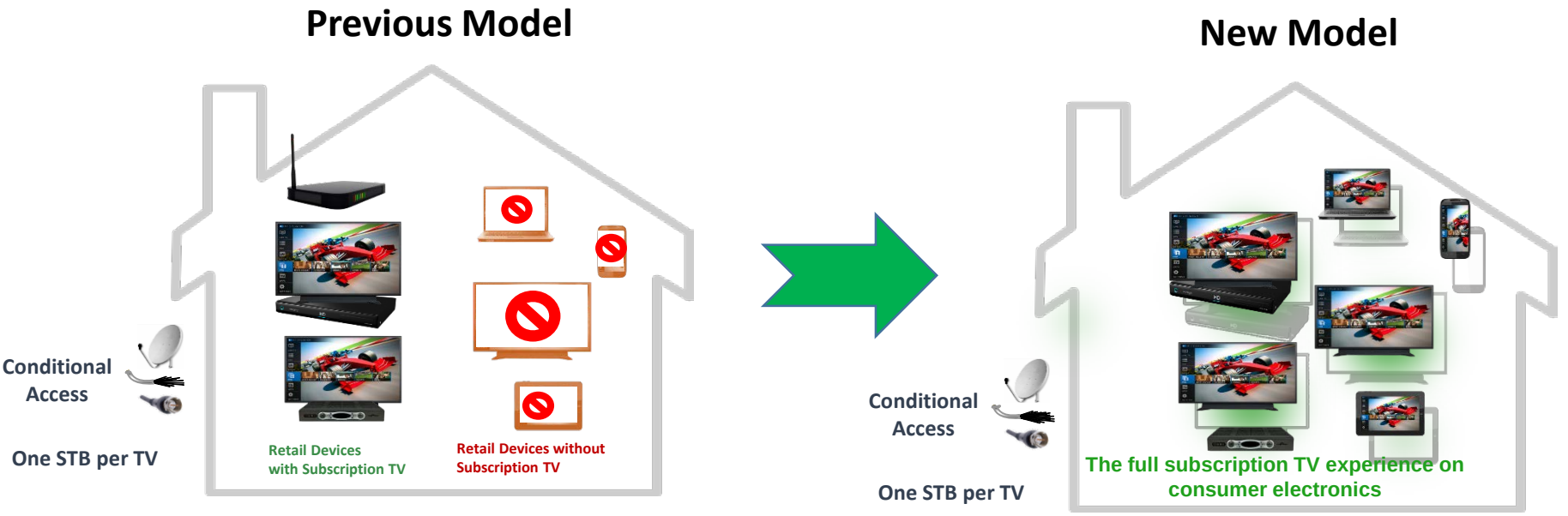
UPnP Powers Drastic Change in Multiscreen PayTV

- UPnP Powers DLNA VIDIPATH Launched This September



- Requires an OTT app per mobile and TV
- An OTT app like everyone else
- UI changes => all apps change
- Requires conditional approval by Hollywood studios

- No app required neither for TV nor Mobile
- Device gets better delivery, better resolution, and a unified HTML5 experience
- Approved by Hollywood Studios

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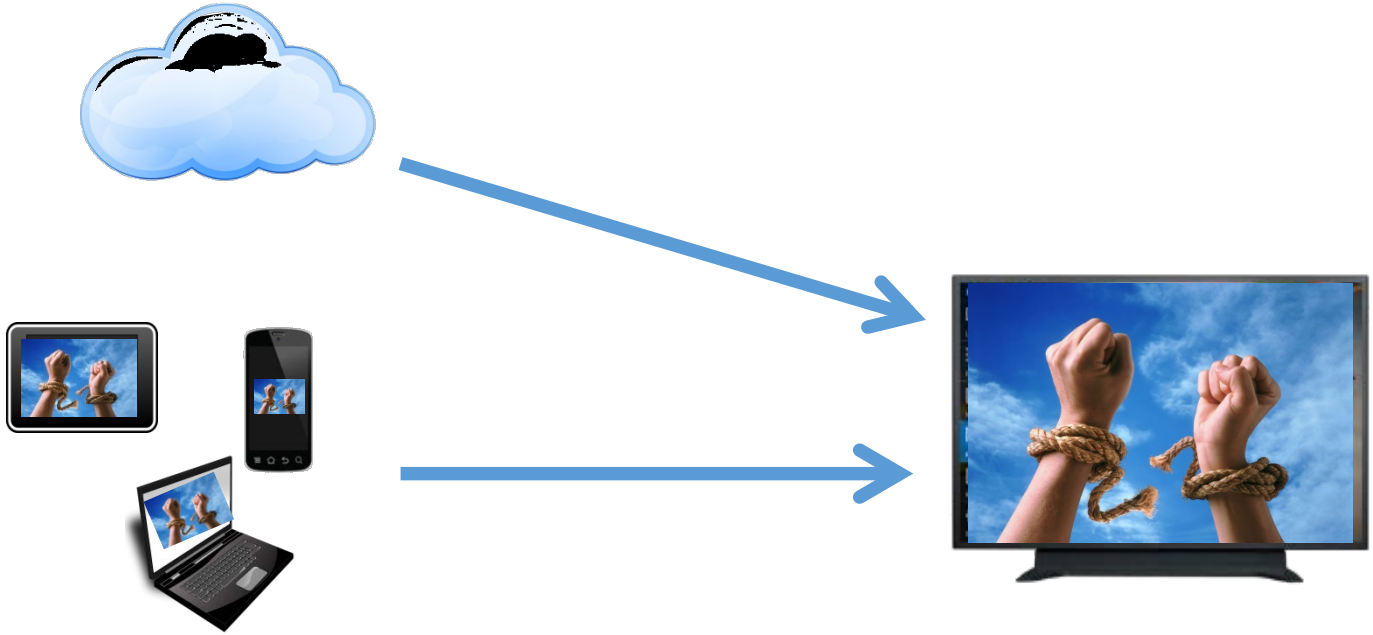
UPnP+ : TV/Mobile Interaction

- **Application Management**: A Better Framework for TV and Mobile Interaction



- UPnP Application Management provides
  - Certification for Interoperability
  - Fair access to the standard: No unilaterally modified registry of services

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Application Management Details

- Device Protocol Specification to detect private communication protocols on the LAN
- Can install, start, stop communication protocols by means of UPnP
- End points are described by “mime-type” equivalent
  - Each vendor can define its own protocol
  - Can choose transport mechanism: HTTP, WebSocket,..

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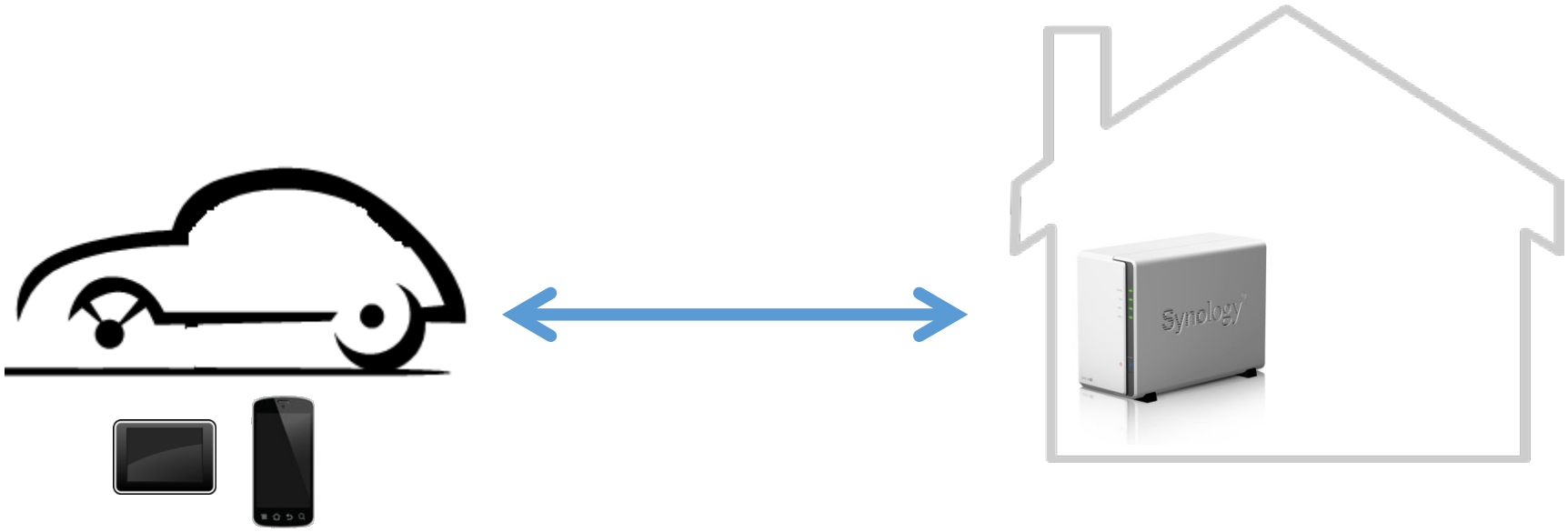
UPnP+ : Cloud for Remote Access

- UPnP+ Provides UPnP Cloud, to access your content everywhere



- UPnP Cloud provides remote access with lightweight, decentralized infrastructure requirements

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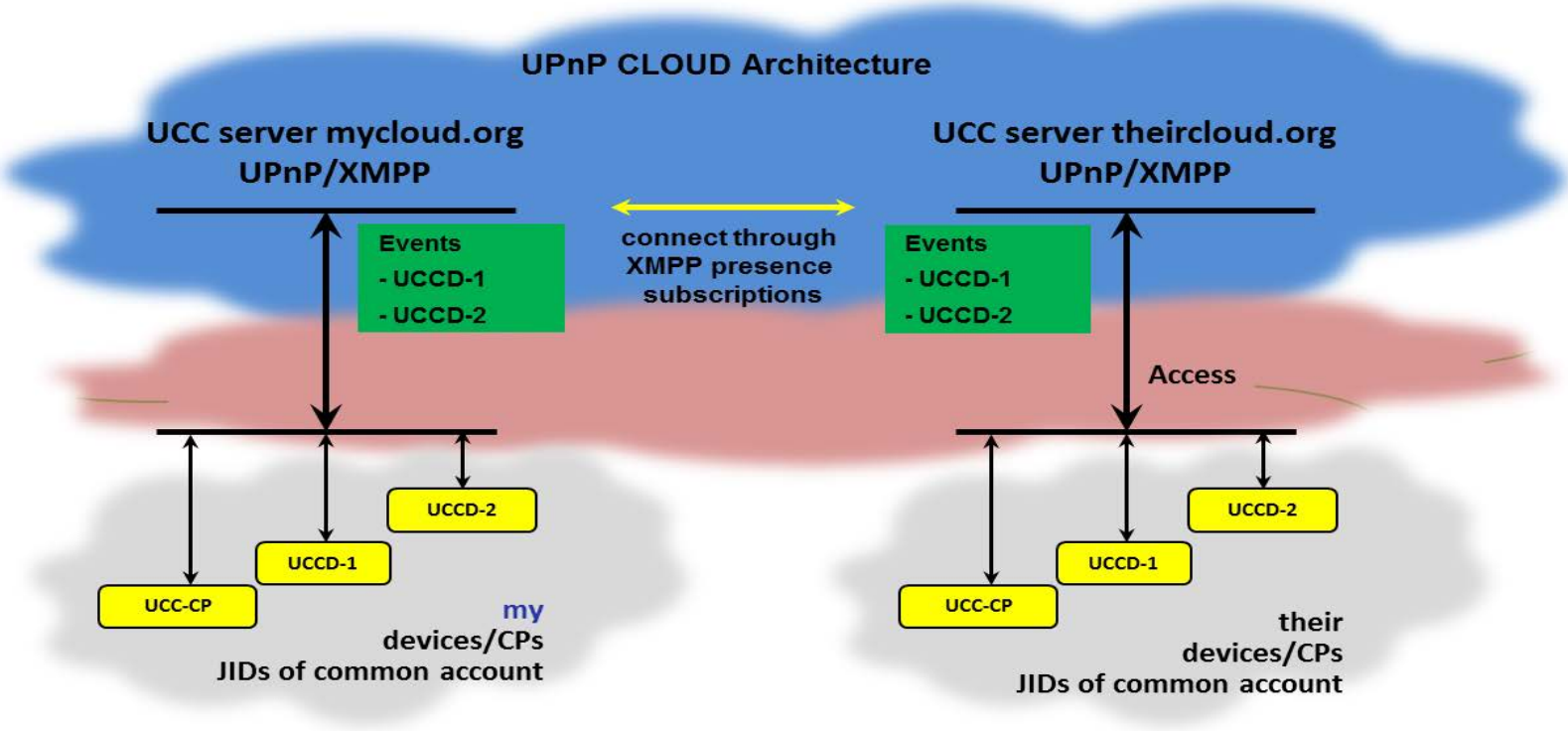
UPnP+ : Cloud details on Decentralized Approach

- UPnP Cloud connects UPnP Devices (UCCD) and Control Points (UCC-CP) as XMPP clients via an XMPP server.



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UPnP+ Cloud Overview

- Multiple local networks are connected to the cloud by means of UPnP Cloud architecture
  - This can include cloud services
  - People & devices are socially networked via XMPP chat room
- Individual UPnP devices and control points can be connected to the cloud with presence, state, and events shared securely with other local networks

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OTTtv is Just the Start of the Internet of Things

- Providers of OTTtv have a basic service that users want, but there will be expanded opportunities with the Internet of Everything
  - Synchronize your lights and drapes with the state of your video (e.g. lights come up when you pause the video to get a snack)
  - Provide viewing suggestions based on context (e.g. who is watching, which room is being used, is it dark outside)
  - Create enhanced viewing experiences (e.g. Sharknado viewing with synchronized color hue lights)

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UPnP+ : Connecting The IoT

- Many people see the Internet of Things as a collection of new devices and sensors that are just now being connected to the Internet
- While these new things will add new capabilities to the Internet, the billions of things already on the Internet are still there and should be leveraged
- In other words, the Internet of Things is not really new, it's just that new "things" are being connected and creating new possibilities
- UPnP connected the "old" things (including OTT video) and now it is addressing the "new" things in a consistent and scalable way

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The New Connected Things

- UPnP devices as cloud service
  - Infrastructure virtualized in the cloud
  - Access everywhere, using same protocols as towards the existing home devices
- More and more devices are becoming connected and are commonly available in local stores
  - Nest Thermostat
  - Bluetooth beacons
  - hue Lights, StriimLight (light with speaker)
  - Online alarm systems
  - DropCam
  - Quirky multi-sensor (light, vibration, temperature, sound), propane grill refill sensor, Porkfolio connected piggy bank
  - Fitbit and other health sensors, connect weight scales and blood pressure cuffs

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UPnP IOT

UPnP IoT solves:

- Aggregating device, sensor and actuator data in a local network
- Observing and controlling those devices from anywhere, agnostic to any platform
- Sharing information on a predefined granularity basis across networks with anyone
- Deciding what, when and with whom to share lies with the owner of the device
- Securing all communication

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The Internet of Everything

- Connected devices are going to proliferate
- Connected services are going to proliferate
- The existing Internet with streaming OTT video is going to grow

Wouldn't it be nice if it all worked together and you could reach the things that are important to you wherever you are using the most convenient interface at the time?

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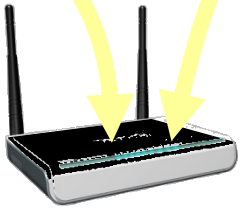
Future Connected Devices

Devices with WAN Connectivity

WAN Discovery,
IP protocols,
Open Source

Cloud services
Inc. 2nd and 3rd tier



Non-WAN aware devices bridged

Non-IP protocols bridged

IP-enabled Home Devices

Non-IP-enabled Home Devices

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Standards

It can! Right now.

This is the role of UPnP Standards

- UPnP is already in billions of common devices primarily enabling OTT video
- From the start, UPnP was designed to control any type of device
- With new UPnP+ standards, UPnP takes this goal of connecting devices with the people who use them to the next level

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For the interconnected lifestyle

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UPnP Forum: What, Where, Who

- The world's leading standard (ISO/IEC 29341) defining device interoperability interfaces
- Billions of installed devices
  - Every home router and media NAS
  - Every PS3 and Xbox 360
  - Most connected TVs, Blu-ray players, and smart phones
  - Every Windows PC since Windows ME
  - Every Wi-Fi device with Wi-Fi Protected Setup
- More than 1,100 members; basic membership is *free*
- Current Steering Committee: AwoX, CableLabs, Cisco Systems, Intel, LG Electronics, Samsung, TP Vision, ZTE Corporation

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About UPnP Forum

- Develops consensus-driven Internet Protocol (IP) technical specifications to enable device-to-device interoperability through Discovery and Control
- Certifies implementations conforming to these standards
- Member companies participate and develop extensions to the UPnP Device Architecture (UDA), which defines how to use IP to communicate between devices, and Device Control Protocols (DCPs), which are services between devices
- Members of UPnP Forum include market leaders in computing, printing and networking, consumer electronics, home appliances, automation, control and security, and mobile products
- Steering Committee:

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UPnP Forum Goals

- In an open environment, develop standards for interoperable device services using common technologies: TCP/IP, SOAP and XML
- Balance protection of member investment in technology with confidence in ability to implement under royalty-free terms
- Encourage rapid and broad industry deployment of compliant devices

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