

Web Applications interact with Home Networked Devices

– TV as the hub in the home –

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What do you do with TV?





Watch movies



Watch TV programs



Play games



Access to Internet services



Access to home networked devices



UPnP/DLNA in a nutshell

DLNA guidelines
inc. media format and
link protection



DLNA began in 2003. Today, more than 245 companies comprise DLNA, DLNA launched its program for product certification in September 2005.

Device &
Service



Control/Event

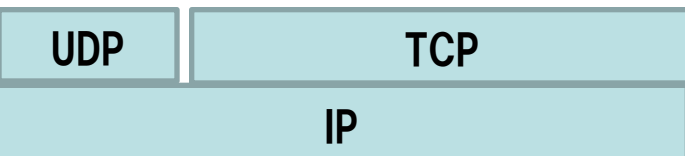


Discovery



Formed in October 1999, UPnP Forum is an industry initiative of more than 914 leading companies in computing, printing and networking; consumer electronics; home appliances, automation, control and security; and mobile products

Network



What UPnP forum standardized?

Audio/Video



MediaServer:3

MediaServer:2 and MediaRenderer:2

MediaServer:1 and MediaRenderer:1

Basic

Basic Device:1

Device Management

ManageableDevice:1

Home Automation

SolarProtectionBlind:1

Digital Security Camera:1

HVAC:1

Lighting Controls:1

Networking

Internet Gateway:1 WLAN Access Point:

Printer



Printer Enhanced:1

Printer Basic:1

Remote Access

RAClient:1, RAServer:1 and
RADiscoveryAgent:1

Remoting



Remote UI Client:1 and
Remote UI Server:1

Scanner

Scanner:1

If a Web application can interact with the home networked devices, then ...

Use case 1)

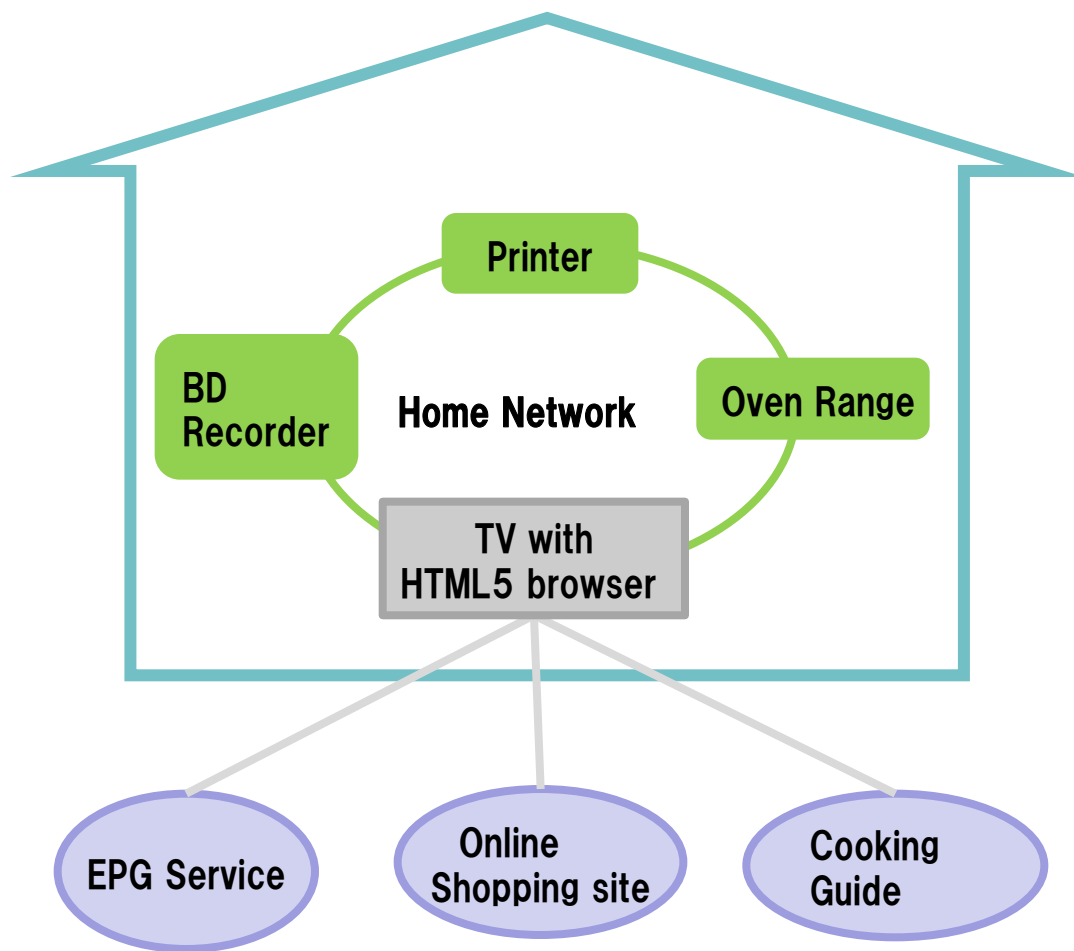
A user accesses to an EPG service and requests scheduled recording for a recommended TV program to the networked Blu-ray Disc Recorder.

Use case 2)

A user accesses to an on-line shopping service and prints a copy of the receipt of the purchased item with the networked printer.

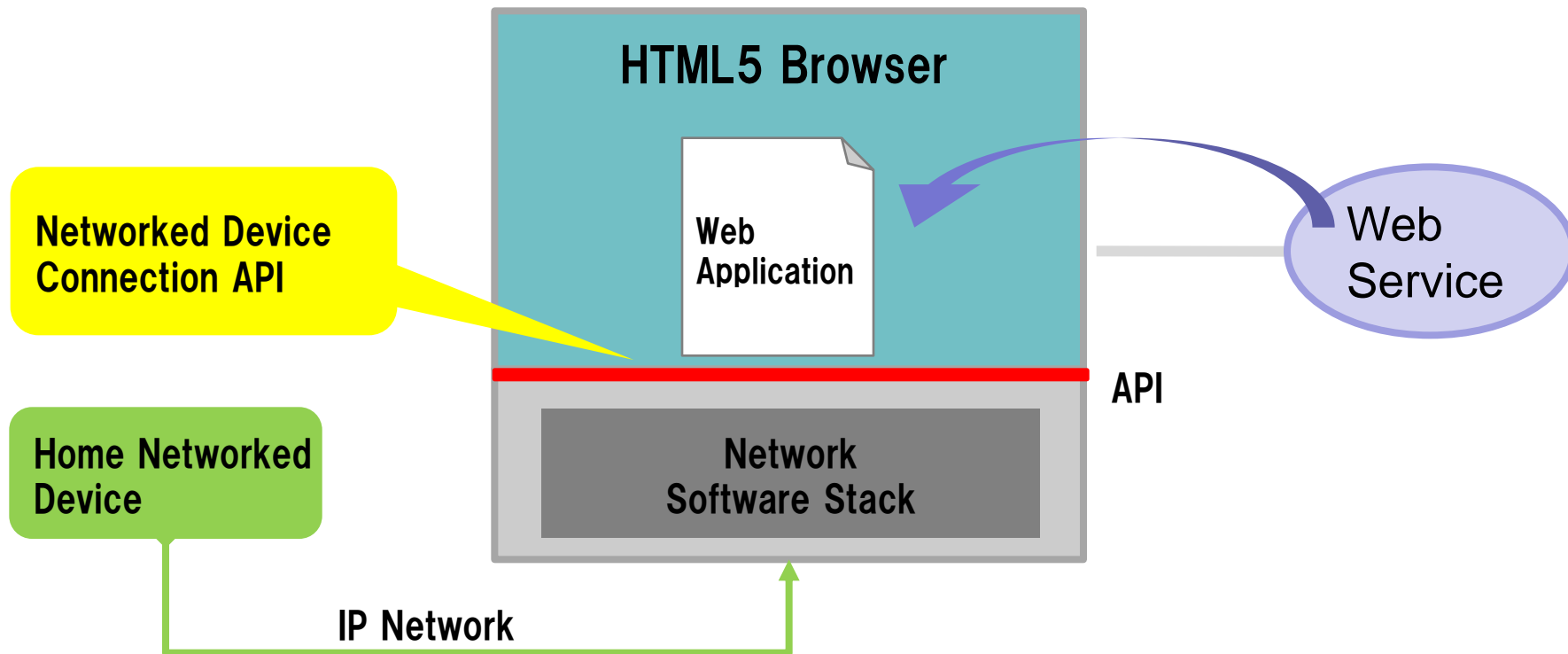
Use case 3)

A user accesses to a cooking guide service and sends a recipe of her favorite cake to the networked oven range.



Suggestion

- Sony suggests to standardize API which enables Web applications to interact with home networked devices (Networked Device Connection API)



Some thoughts on requirements

① **Functionality**

- The API should provide the interface of device discovery and message exchange via local IP area network

② **Versatility and Extensibility**

- The API should apply to various device/service types of standard protocols with extensions

③ **Interoperability**

- Discovery mechanism and message exchange protocol have to be standardized to ensure interoperability between browsers and home networked devices

④ **Security and Privacy**

- The API should be designed to provide users with mechanisms to protect security and privacy caused by allowing access to network devices.