



Technology and Standard Trends of Home Network Middleware and Services

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가
, DLNA
가
가

I.

Ethernet, HomePNA, RF
(Radio Frequency), PLC(Power Line Communi-
cation)

1990

? 가
?
가 , 1990

가
LonWorks[1], CEBus[2],
HAVi[3], UPnP[4],
Jini[5]

1980

OSGi(Open Service Gateway initiative)

[6]가

2000
가 TCP/IP

20

IP

UPnP , non-IP
 . MS, Intel, HP IT 가 /
 UPnP DLNA(Digital Living Network , 1.0 6 DLNA
 Alliance)[7]

2. HAVi

HAVi 1998 , AV 70%

8 가 가

II.

UPnP, HAVi, Jini, HnCP[8], , 1998 11 1.0 2000
 LnCP[9], S3, LonWorks, OSGi 4

. HAVi IEEE1394
 JVM , TV

. HAVi DVB-MHP
 (Digital Video Broadcasting - Multimedia Home
 Platform)

Open Cable IEEE1394
 , IP over 1394

1. UPnP

UPnP Mixed-Media Multi-Vendor

1999 6

, Intel, Compaq,

150

가 PC

8

가

4 가

가

. UPnP TCP/IP, HTTP, GENA, SOAP, SSDP
 IETF

, DA(Device Architecture), AVA(Audio Video
 Architecture), Security Architecture 3

. 2004 7 UPnP AV

1.0

UPnP AV 1.0

release

DLNA 1.0[10]

UPnP DA AV

UPnP

De-Facto

3. Jini

Jini

1998

. Jini

OSGi
 (LonWorks, CEBus)
 JVM RMI(Remote Method
 Invoke) 가
 가
 4. LonWorks
 LG 가 가
 가
 LonWorks,
 CEBus 가 ITRAN
 (LonMark[11], CEBus) 1990
 LonWorks ANSI , LnCP(Living net-
 EIA 709.1 , work Control Protocol)
 가
 LonMark
 LonWorks LonTalk LG LnCP
 (MOU) LG API
 Neuron
 가 Lon LonWorks 가
 LNS 가
 Lon- S³(S-cube) LonTalk
 Mark 가 가
 LonWorks 가 LonMark
 가 가 가
 5. HnCP, LnCP, S³
 2000 12 PLC
 가
 LonWorks, CEBus
 , 2003 6 HnCP(Home network Con-
 trol Protocol)
 . HnCP LG

LnCP

, - 가 가 50

가

Echelon
ITRAN

가

III.

가

802.15.x

가

PLC

HnCP

가

1.

, TTA

ADSL 가
가

IT

가

All-IP

IPv6가

, LG

가

가

가

가

가

IP

non-IP

가

IP

가.

De-Facto

UPnP

IEEE1394, RF non-IP

? HnCP, LnCP, S³, LonWorks ?

가 LG

가

가

가

UPnP

가

가

. LG LnCP

UPnP

50~450kHz

UPnP-LnCP

, Echelon UPNP- LonWorks 2004 7 DLNA interoperability guideline 1.0

ETRI UPNP

가 . DLNA IP

DLNA (Digital Media Player: DMP, Digital Media Server: DMS)

Ethernet WLAN(802.11a/b/g), ARP, IPv4, TCP, UDP, ICMP

SSDP, GENA, SOAP

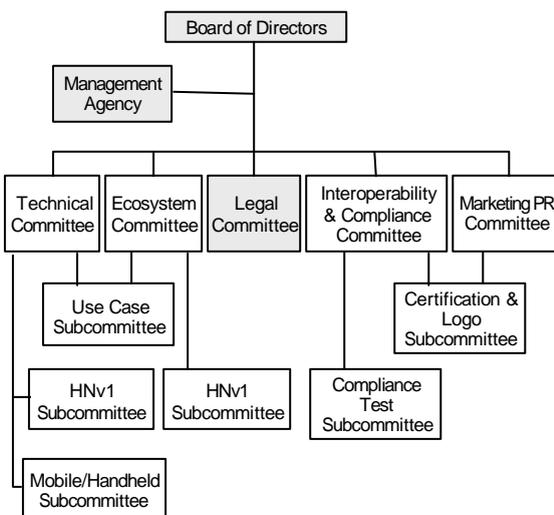
UPnP DA

UPnP AV

DLNA DHWG(Digital Home Working Group) 2003 6

2004 8 8 BoD(Board of Director) , HP, Intel, Microsoft, Nokia, Panasonic, Philips, , Sony 160

가 , 5 (committee), 6 subcommittee (1)



(1) DLNA

가

DLNA interoperability guideline 1.0

가

DLNA (Digital Media Player: DMP, Digital Media Server: DMS)

Ethernet WLAN(802.11a/b/g), ARP, IPv4, TCP, UDP, ICMP

SSDP, GENA, SOAP

UPnP DA

UPnP AV

HTTP 1.0 (< 1>)

< 1> DLNA

Media class	Required format
Imaging	JPEG, PNG
Audio	LPCM
Video	MPEG2

, DLNA1.0

IP

/ 가

HNv2 DLNA UCS - TF

DRM (Digital Rights Management), RTSP/RTP, QoS . DLNA

2.0

가

. OSGi

OSGi 1999

