

ANSI E1.17-2015

Architecture for Control Networks – EPI 12. ACN on Homogeneous Ethernet Networks

E1.17 Profile for Interoperability

Part of ANSI E1.17 - 2015, which was approved by the ANSI Board of Standards
Review on 21 May 2015.

This part has no substantive changes from the 2010 edition.

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Revision History	
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Abstract

This profile specifies various requirements to be met when operating ACN components on homogeneous Ethernet networks.

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ACN EPIs

ANSI E1.17-2010 is the “Architecture for Control Networks” standard [\[ACN\]](#). It specifies an architecture – including a suite of protocols and languages which may be configured and combined with other standard protocols in a number of ways to form flexible networked control systems.

E1.17 Profiles for Interoperability (EPIs) are standards documents which specify how conforming implementations are to operate in a particular environment or situation in order to guarantee interoperability. They may specify a single technique, set of parameters or requirement for the various ACN components. They may also specify how other standards (including other EPIs) either defined within ACN or externally are to be used to ensure interoperability.

Note

Within this document, the term “Ethernet” is taken to include IEEE802.3 networks

1. Ethernet implementation

The network infrastructure is made up of a set of links and nodes. Nodes may be ACN nodes (devices, controllers etc.), infrastructure nodes (hubs, switches, routers) or foreign nodes which use the physical network but are not using or transporting ACN protocols.

All links connecting ACN nodes to the network shall be via Ethernet and shall conform to [\[Cabling\]](#).

Ethernet links which are not directly connected to ACN nodes should conform to [\[Cabling\]](#).

Any links within the network using technologies which are not Ethernet (e.g. via bridges) shall not present discontinuities in speed, latency or MTU outside the normal Ethernet variations.

2. Switches, Hubs, Routers

No special requirements are made with regards to switches, hubs and routers other than as specified in [\[Cabling\]](#).

Caution

System managers and implementers should be aware of ACN's extensive use of multicast addressing and the issues this can raise with regards to switches or routers operating at either layer 2 or layer 3. These are mentioned here but detailed discussion is beyond the scope of this EPI.

Layer 2 switches usually treat multicast traffic in the same way as broadcast which has implications for efficiency and network saturation.

Layer 3 switches can handle multicast traffic more elegantly but may require configuration and management to do so. Furthermore, such switches may not be designed for heavy multicast traffic and may not behave as predicted (e.g. they have been known to treat high multicast traffic as a denial of service attack and drop these packets!)

3. Cables and connectors

Network cabling shall conform to [Cabling].

References

Normative

- [ACN] Entertainment Services and Technology Association, since 1 January 2011 PLASA NA
[\[http://tsp.plasa.org\]](http://tsp.plasa.org). ANSI E1.17 - 2010, *Entertainment Technology - Architecture for Control Networks*.
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[\[http://tsp.plasa.org\]](http://tsp.plasa.org). TSP CP/1998-1005r3. *Supplement to the Recommended Practice for Ethernet Cabling Systems in Entertainment Lighting Applications*. 1999.