

OpenACN Project

The aim of the project is to generate an open source ACN¹ implementation to benefit the entire entertainment technology industry. Good open source code will speed up widespread adoption of ACN and help more companies implement ACN. This benefits not only consumers, but manufacturers too, who can expect to see an expanding market for new products, not unlike the expanding market enjoyed as DMX512 implementation became universal.

An initial two month endeavour (called Phase 1 in this document) coordinated by Engineering Arts is proposed to get this off the ground.

A variety of technical and financial resources are required to move forward with this project. Significant contributions have already been pledged, and additional contributors are now being sought to help fund to this valuable initiative.

Following Phase 1, subsequent development will be to some extent in the public domain, but further phases may be defined if need and support are identified.

Phase 1 Details and Objectives

Collaboration Platform

An OpenACN project has been started on SourceForge.net^{2 3}. All code will be placed there as soon as it is open. However, since part of the project entails migrating proprietary code to open-source use, some restrictions may apply subject to the wishes of contributors of proprietary code. In these cases, initial code will be maintained at Engineering Arts on a private Subversion repository⁴ until it has had proprietary information removed. Access to this repository will be open to any contributor should the need arise and subject to any non-disclosure restrictions applying to initial proprietary software.

Among the services available from SourceForge.net the following are anticipated to be used:

- Versioned source code repository using Subversion
- Trackers for bug fixes, feature requests etc.
- Forums
- Mailing lists

1 American National Standard ANSI E1.17-2006 Architecture for Control Networks.

2 SourceForge.net is the world's largest Open Source software development web site, with a centralized resource for managing projects, issues, communications, and code. SourceForge.net provides a wide variety of services to projects. For more information visit: <http://sourceforge.net/docs/about>

3 <http://sourceforge.net/projects/openacn>

4 Subversion: a version control system similar to, but more versatile than CVS. Available on all major operating systems.

Software Aims for Phase 1

To be Included

- Root Layer Protocol implementation.
- SDT implementation.
- DMP implementation.

Specifically Excluded

- SLP – use OpenSLP as updated by ETC.
- TFTP – multiple open source implementations are available.
- DHCP and IPv4LL – there are GPL and may be other open source implementations.
- DDL – open source XML parsers exist and authoring tools are already developed. Work on DDL may be undertaken in future phases.

General Software Specification

- All code to be in ANSI C99
- All code to be thread safe libraries
- Code not to depend on any specific multi-threading library or system
- Implementation will initially be written on Linux using GCC and Gnu Make and concurrently on Windows using either Microsoft Visual Studio or Borland C compilers with Gnu Make.

Root Layer Protocol

- Implement as library
- Interface to BSD sockets and Winsock API via network abstraction layer.
- Define API

SDT

- Implement as library
- Interface to Root Layer Protocol API
- Define API
- Need to investigate mechanisms for multiple components within host (OS abstraction layer? Inter Process Communications interface?)
- Hooks for implementing session management policies?
- Needs idle time calls or other mechanism to implement timers

DMP

- Implement as library
- Define API
- Separate controller and device APIs?
- Should library use a connection abstraction layer to allow different transports?

OpenACN Project Costs

Engineering Arts will charge \$20,000 to develop Phase 1 and anticipates completing this work in approximately two months. In addition to development costs, some minor but ongoing expenses are anticipated to pay for homepage, list maintenance, etc.

Contributions Pledged to Date

A number of companies have agreed to contribute funding and/or relevant material to OpenACN, including:

- Two firm commitments of financial contributions
- Use of proprietary ACN implementations for interoperability testing from Electronic Theater Controls Inc. (ETC).
- Proprietary source code as a starting point from Pathway Connectivity, on the understanding that any sections which are specific to the contributor's own products are removed before the code is publicly released.
- Implementation code for ESTA E1.31 ("Streaming ACN") from ETC.
- API definitions for abstraction layers to make the resulting libraries portable between a wide variety of environments from a major company.
- Assistance with publicity for the project.
- The domains *openacn.org* and *acndev.org* have been secured.

Additional Contributions Needed

While interest has been registered by many other companies, firm commitments for funding are needed by March 21st to complete this phase in a timely fashion. Significantly, contributions of \$5,000 (or more) are requested to get the project underway. Additionally, we would like to find contributors willing to develop and manage a home page, forums and mailing lists.

Details pertaining to billing arrangements with Engineering Arts are available to interested companies.

If you are interested in contributing, want billing arrangement details or just want more information, please contact Philip Nye at Engineering Arts openacn@engarts.com – address at the head of this document.

Commercial Interests of Contributors

Contributing organizations will gain the benefit of having an open source implementation which will help promote wider use and therefore greater momentum for ACN throughout the industry. Any company which is intending to implement ACN themselves stands to gain considerable cost reduction by sharing the development costs and gaining the benefits in interoperability and reliability that open source software can provide.

Contribution to the OpenACN project does not of itself indicate intended use or endorsement of any specific software, nor does it indicate any liability arising from use of the software by others.

Publicity and Endorsement

Contributors should indicate whether or not they wish their names to be associated with the project in publicity materials such as press releases and announcements. Their status may be changed at any time by written request.

Intellectual Property

Copyright and Software License

Software copyright will remain with its original authors or owners as appropriate. License for use will be governed by the New BSD License: <http://www.opensource.org/licenses/bsd-license.php> (We could also consider LGPL, Academic-Free or Mozilla licenses).

Patent Protection

It is the responsibility of any organization manufacturing or selling a product to perform any investigation they believe necessary into patents which may apply to that product in any appropriate market or jurisdiction.

The ACN architecture itself has been developed under ESTA's standards process which includes a policy of open patent disclosure details of which can be obtained from ESTA's Technical Standards manager. This is *not* a guarantee that any particular product, use or implementation of ACN will be free of patent liabilities.

Engineering Arts will not deliberately or knowingly incorporate protected intellectual property into OpenACN unless it is covered by a suitably unrestricted free license, but since we claim no patent expertise and do not perform patent searches this does not guarantee it to be free of such protected property. Furthermore, since many patents relate to specific uses of technology and since there can be no control over the use to which open source software is put, it is the responsibility of anyone using OpenACN for any commercial purpose to make whatever investigation they think necessary into the patent position for their own specific product or use.

Project Timing

Phase 1 will commence very shortly provided I receive the requisite purchase orders. It is expected to complete around the middle of May 2007 allowing some time for prior commitments not directly related to OpenACN.

If you are interested in contributing or want more details, please contact Philip Nye at Engineering Arts openacn@engarts.com – address at the head of this document.