



**Final Report of the Internet2 Real Time Communications Advisory Group to the Internet2 Applications Strategy Council**

December 4, 2006

Dear ASC Members,

The Real Time Communications Advisory Group (RTC-AG) has concluded its work and offers the attached products for your consideration. RTC-AG began its work in spring of 2005 and with the submission of this report has fulfilled its charge and completed all deliverables. With the fulfillment of its requirements, the RTC-AG is disbanding and recommends the formation of an on-going Real Time Communications Steering Committee (RTC-SC), with a more formalized membership process, to perform an ongoing review of RTC activities within Internet2 on a sustained basis.

The RTC-AG was charged to produce the following deliverables:

1. A technology/application architecture with a roadmap of what is available today and what is visible on the horizon, including identification of key standards that are necessary for interoperability of real time communications applications.
2. Recommendations for production, Internet2-wide and beyond, implementations of RTC tools and applications that integrate with work on middleware and include end-to-end diagnostics and support mechanisms.
3. A guide to RTC applications that will help members understand which of the applications or approaches may best fit their needs and information on how to best deploy them for different purposes in our community.
4. A recommendation on how best to align the production service, research and development activities now going on within Internet2. The result should be an alignment of working groups and a set of prioritized activities.

The RTC-AG has met this charge by producing the following deliverables:

1. **A Reference Architecture.** The Reference Architecture describes a set of technologies and activities that campuses can use as a roadmap for the development of RTC services. It describes near term steps, long term goals, and key strategic considerations for campus service providers. An important goal of the Reference Architecture is to facilitate the development of an interoperable communications and collaboration environment between campuses. The adoption of the RTC-AG Reference Architecture will occur gradually and imperfectly over many years. It is our belief that this will help to focus the membership, our corporate partners and the RTC market in general so that development and deployment efforts will be less scattered, and that this focusing will help deliver products and services that more closely match the needs of the research community.

It is important to note that the Reference Architecture is specific on some topics and intentionally open on others. This represents a deliberate effort on the part of the RTC-AG to focus near term activities without discouraging the development

of innovative protocols and technologies, and to demonstrate that the environment created by the Reference Architecture is not rigid, but allows for flexible campus participation.

2. **An RTC Architectural Checklist.** The Reference Architecture has been decomposed into a checklist that can be used as an instrument to measure the readiness of an institution or product to support the Reference Architecture. The RTC-AG is seeking broad dissemination of the checklist in the hopes that it will be used in the following ways:
  - a. **Campus CIOs** who want to measure their organization's readiness to support real time communications can administer this instrument internally for a view of RTC strengths and weaknesses in their institutions.
  - b. **IT managers** who want to assess the ability of vendor products to comply with standards and practices being implemented at other Internet2 campuses to ensure interoperability can copy and paste this checklist into RFPs for equipment, systems and services.
  - c. **Vendors** who wish to promote their standards-based products to the research and education community and demonstrate their strategic and technical leadership can share this completed instrument with potential clients.
  - d. **Technical professionals** who want to share information about system performance can complete this instrument for a particular product that they have used to share their experiences within an Internet2 working group.
  - e. **Internet2 managers** can use this tool to assess how on-going and proposed working group activities align with the over-arching strategic direction for RTC.

Internet2 has been tasked with maintaining a repository of checklists completed by working group members. This repository can be viewed by participants to develop consensus around best practices and tools for deployments across Internet2.

3. **Website.** The RTC-AG website ([www.internet2.edu/rtc](http://www.internet2.edu/rtc)) has been redesigned as a focal point for the deliverables listed herein. It is an easy to resource that can engage the membership and vendor communities.
4. **Activity Alignment Recommendations.** RTC-AG has developed a set of recommendations to restructure existing working groups, develop new ones, and identified strategic actions that Internet2 can take to promote the development of a cohesive RTC infrastructure across the Internet2 fabric. This document also specifies the dissolution of the existing RTC-AG and recommends the creation of a standing Real Time Communications Steering Committee.
5. **Executive Summary.** An executive summary provides an overall view of the RTC-AG's recommendations and a guide to the various resources available.

The RTC-AG was very comfortable with two of the original charges, specifically the Technology / Application Architecture and Activity Alignment efforts, and these requests are directly addressed with multiple deliverables. However, the RTC-AG ultimately was not comfortable providing direct recommendations for production tools or guides to RTC applications, even after extensive discussion on the topic. The group decided to address these charges from a different perspective and would like to elaborate with the following points.

- One reason the RTC Architectural Checklist is so structured is to allow for the dynamic evolution and sharing of best practices and product experiences so that any such inventory can be organically refreshed rather than having the very short shelf life of a static inventory.
- Collaboration tools and collaboration needs are extremely varied such that attempts to capture them will invariably fail to meet individual application targets. Therefore it is better to describe the underlying architectural functionality and let service providers choose from among those that meet the architectural criteria.
- There is a history of success for underlying architectural guidelines that are implemented by different campuses with different vendors. This is of course true with IP itself and the web, but more recently with H.323. We see signs of this continuing with SIP for voice and video and believe it is a sound strategy. Though it is less direct than an application guide or recommendation, it is more likely to stand the test of time.
- We believe that a significant goal of Internet2's RTC strategy should be to enable *campus* infrastructures that are interoperable. A part of that strategy is avoiding direct communication between Internet2 and end users and instead facilitating communication between end users and campus IT organizations, with whom Internet2 communicates its RTC strategy and initiatives directly. We have included this communications component in our deliverables as an aid in reducing situations in which end users implement non-interoperable systems without consulting with campus IT organizations.
- The success of the RTC Architectural Checklist as a tool to engage campuses and end users in common systems deployment will ultimately depend on the resources allocated by Internet2 to manage and promote this service.

Finally, we would like to suggest that with this set of recommendations Internet2 is in a position to establish a much more deliberate and active stance regarding its activities. Without a clear roadmap, developed with legitimate consensus and participation of its members, Internet2 can do little more than allow working group activities to drift in the prevailing winds. This has resulted in a dissolution of activities and energy around what should arguably be one of Internet2's most aggressive directions. However, with such a roadmap as this in place, Internet2 should feel comfortable stating its direction, restructuring working groups, identifying projects and activities to support, and supporting those initiatives with meaningful funding and staff support.

The Real Time Communications Advisory Group challenges Internet2 to address this aggressive charge.

Sincerely,

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