

**Using Information Technology to  
Achieve the Strategic Goals of  
Rutgers, The State University of New Jersey**

**Appendix 6: Comments from Teaching and Learning sub-committee  
and Research sub-committee on network convergence**

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The national university research community is moving to integrate voice and video into the IP-based data network. This provides several advantages:

- easier setup for video conferences, particularly if some participants are using video and others voice
- integration of addressing with email and other data services
- user expectations that all services are available everywhere, including a variety of portable devices
- access to video programming anywhere the network is available
- simplification of voice moves and changes
- ability for voice service to follow the user
- eliminates the need for 3 separate cable plants
- cost savings in some areas, particularly international phone calls

These changes are necessary if we're going to move from video as an unusual service that takes special setup to using it as a normal service. Unification of voice, video and data directories and addresses is one of the more important aspects of these changes. We are going to be forced to reengineer RU-TV, as FCC policies move programming to digital. While digital TV can be carried over cable, there will still need to be new equipment. We should use this as an opportunity to reexamine how video is carried at the University. Outside the dorms, cable is not widely used. Making video available via the data network could greatly improve usability of video for research and instruction. The Internet 2 community is moving rapidly to implement new standards for carrying voice over the network. The most important of these is SIP (Session Initiation Protocol). The motivations include growing expectations for access to all communications services through all devices, the ability to find someone using their email address, the ability for voice and video access to follow the person, and cost savings for toll calls.

As one example, here are the goals of the GUPS (Global University Phone System, <http://www.aboutreef.org/gups/>) project, in which UC San Diego, UC Santa Cruz, UC Irvine, University of Oklahoma, University of Philippines, Indiana University and BYU are initial participants:

- Free University to University calling.
- International applicants are able to reach your campus and talk to faculty at no cost.

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- Any PC in the world may call your university campus free of charge.
- Creates a university consortium for students globally to enhance distance learning.
- Allows access to people in remote areas of the world for information dissemination.
- The creation of an environment of free knowledge transfer to enable collaboration.
- Faculty can always be connected and accessible even from remote locations.

Initial implementations do not require a complete reengineering of the voice network. Several campuses are providing gateways into existing PBX systems, or implementations based on desktop PC's that coexist with conventional telephones. To participate in these efforts, at a minimum, we need to assign staff to build necessary directory services, gateways, and other services to support SIP, and to provide documentation and support to the users.

For the longer term, we should plan for use of voice over IP for core telephone service, as technology and our normal upgrade cycles permit. It is particularly important to make sure that new networks and network equipment should support voice and video over the network. This means that the network should support Quality of Service, and in many cases power over Ethernet.

**Recommendation:** Begin support for convergence of voice, video and data networking.

- Develop directory and gateway services permitting Rutgers to be part of Internet 2 voice activities.
- Develop plans to move to voice over IP, as technology and update plans permit.
- Provide RU-TV and other video services via the data network.
- New buildings and installations should provide video over the data network.
- Make sure that all new networks and network equipment support converged services.