

Internet2 Development Funds Program Proposal Submission Form

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The Information Technology Division*

Name and Title of Primary Contact	Department	E-mail Address
Kaveh Pahlavan	ECE	kaveh@ece.wpi.edu
Other Partners (if applicable)		
Ahmad Hatami, Ph.D. student and Instructor	ECE	hatami@wpi.edu
_____	_____	_____
_____	_____	_____

A Descriptive Title of Proposal:

Performance Analysis of a Distance Learning Experiment over Internet2

A brief description of your proposal and its significance to WPI including the specific role of Internet2 in the proposal and how it will be used (approx. 250 words):

In this project we design a test-bed to evaluate the performance of Internet2 and compare it with the performance of traditional Internet used in distance learning application (e-learning). In the overall scenario for this application professors with different specialties distributed in several universities worldwide participate in teaching a classroom. Each professor teaches his/her parts of the course from his/her own campus to students distributed in several campuses accessing the course material through their laptops connected to Internet through a wireless LAN.

Figure 1 shows the proposed test-bed for performance engineering of e-learning system. The test-bed consist of three geographically separate classrooms:

1. WPI: In this location we have access to Internet2 and conventional Internet at the same time.
2. University of Pittsburgh: In this location we have access to Internet2 and conventional Internet at the same time.
3. University of Oulu, Finland: In this location we do not have access to Iternet2, and our communication is only through conventional Internet.

The application evaluated would be a joint course offered in three different locations. Three sample lectures are given from WPI, University of Pittsburgh and the University of Oulu, Finland to students using laptops connected to WPI's wireless LAN network. Each streaming server is capable of multicasting the presentation to the interested audiences in real time audio and video, as well as on demand presentations. The performance of the network from Pittsburgh using Internet 2 is compared with the performance from Pittsburgh and Oulu using traditional Internet as well as the performance in the WPI's local network. The performance criteria measured and analyzed in this experiment are throughput, packet loss, delay and delay-jitter.

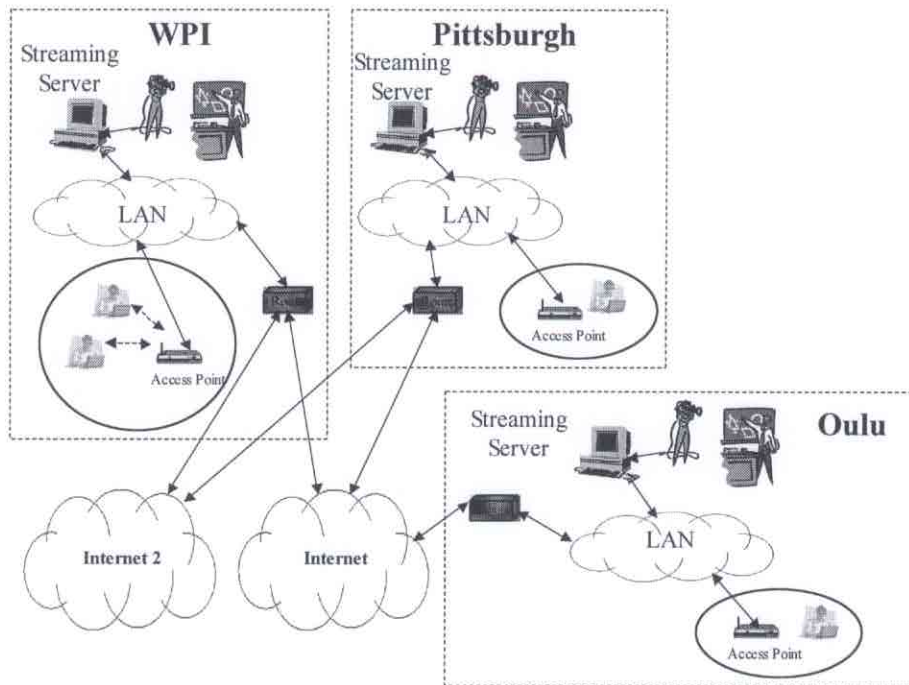


Figure 1: Test-bed Description

URLs that relate to your application (if applicable):

Remote partner(s) with whom application is being developed (if applicable):

Professor P. Krishnamurthy, University of Pittsburgh and Professor P. Leppanen, University of Oulu, Finland.

Course(s) that will directly benefit from the I2 development funds (if applicable). Please provide course(s) title and number(s):

EE506/CS513 Introduction to LANs and WANs, EE539S/CS525W Mobile Data Networking

Total Support Requested
(please attach budget form)

Requested Starting Date and Duration

\$7,500

From June 1, 2002 to January 2003

CERTIFICATION

I agree to abide by the conditions in the guidelines if an award is made.




Signature of Applicant

11/11/02

Date

ENDORSEMENT



Signature of Department Head

11/14/02

Date

**Internet2 Development Funds Program
Budget Form**

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Faculty Compensation* (specify individual and time period)

_____ \$ _____

Student/Technician Support* (specify time period and activities)

3 months full-time RA for test-bed implementation, measurement, preprocessing, post-processing of raw data and analysis. \$6000.00

*Fringe benefits (at current rate for faculty and staff salary only; not for students, consultants, professional development, or adjunct replacements)

_____ \$ _____

Travel (specify)

_____ \$ _____

Supplies, software, equipment (specify)

Supporting computer supply (Video Capture Card, Software Protocol analyzer, Real producer Software, Real Server Software) \$1500.00

Other costs (itemize)

_____ \$ _____

Total \$7,500

Please attach an additional sheet for Budget Justification if required to give additional detail. All funds must be expended by January 1, 2003.