



**Memorandum of Agreement between  
The Pacific Northwest Gigapop and  
The Northwest Academic Computing Consortium**

**Advanced Network Engineering Feasibility Study  
7 April 2006**

The Northwest Academic Computing Consortium (NWACC) will compensate the Pacific Northwest Gigapop (PNWGP) \$100,000 to prepare an *Advanced Network Engineering Feasibility Study*. NWACC and PNWGP understand that there is an intrinsic trade-off between the level of detail of analysis for each connecting site, the number of options pursued for a site, the degree of difficulty in finding an option for a site, the number of sites to be analyzed, and the limited resources that have been made available for this complex and multi-faceted study.

NWACC and PNWGP agree to the following deliverables, conditions, timeline, routes to study, and payment terms:

**Project Deliverables**

1. PNWGP will prepare and deliver to NWACC a feasibility study that will include an option for connecting each of the NWACC institutions specified in the list of *Routes to Study* (below) to the nearest logical advanced research and education network hub.
2. Suggestions of relevant hardware approaches and an estimate of general cost ranges for each route.

**Conditions**

1. PNWGP is instructed to pursue a strategy of inclusiveness, seeking to find general options for as many of the connections listed below as possible, rather than to develop specific connection options in detail.
2. It is understood that in some cases there will be no option that emerges on initial study, other than engineering and conducting a major fiber design and build. Developing detail such as identification of a specific path in these instances will have a lower priority for use of the NWACC resources than pursuing cases where there are fiber acquisition or lease options. PNWGP will concentrate on those sites where there is greatest likelihood of fiber acquisition or lease.

3. Specific judgments about particular sites and resolution of trade-offs will be made through a process of consultation between the PNWGP, the President of NWACC, and the *NWACC Advanced Network Task Force* composed of Steve Smith – University of Alaska (chair), Louis Fox – University of Washington, and Keiko Pitter – Whitman College.

### **Project Timeline**

1. Upon execution of this agreement, the Chair of the *NWACC Advanced Network Task Force* will request from NWACC Board members that: (1) participating campuses designate a campus contact (with contact information) who has authoritative knowledge of campus wiring infrastructure, and connections to and from campus to external entities such as ISPs and telephone companies; and (2) participating campuses provide service addresses for connections to be explored in this study.
2. The PNWGP and the NWACC Advanced Network Task Force will endeavor to prepare an interim report to present preliminary findings at the NWACC Board Meeting scheduled for June 7, 2006.
3. A final report from the PNWGP will be delivered to the NWACC Board of Directors by September 30, 2006.

### **Payment Terms**

Total funding provided by NWACC to the PNWGP shall be \$100,000, payable as follows:

*Initial payment:* \$30,000 to the PNWGP upon mutual execution of this Memorandum of Agreement;

*Monthly progress payments:* up to \$50,000 in total, in amounts to be determined by mutual agreement of the President of NWACC and the Chair of the NWACC Advanced Networking Task Force and upon receipt of appropriate invoices and documentation of work completed to date;

*Final payment:* \$20,000 to the PNWGP at the completion of the project and the delivery of the Advanced Network Engineering Feasibility Study.

## **Routes to Study**

### *NWACC Montana\*:*

Montana State University to Missoula hut/pop  
University of Montana to Spokane continuation

*\*Montana feasibility study efforts will be coordinated with the Northern Tier study, to maximize resources and to ensure thoroughness.*

### *NWACC Washington:*

University of Washington Tacoma to PNWGP  
Pacific Lutheran University to PNWGP  
University of Puget Sound to PNWGP  
Evergreen to PNWGP  
Seattle University to PNWGP  
Seattle Pacific University to PNWGP  
Western Washington University to PNWGP  
Central Washington University to PNWGP or Yakima hubs  
Eastern Washington University to Spokane hub  
Spokane to Washington State University hub - fiber route option  
Whitman College to TriCities, Yakima, Boise or Spokane hub  
Pacific Northwest National Labs fiber interconnect to Level(3) path to Boise

### *NWACC Oregon (Portland area):*

Portland Community College Cascade to Pittock/Brewery Block/or Level(3)  
Portland Community College Rock Creek to Pittock/Brewery Block/or Level(3)  
Portland Community College Sylvania to Pittock/Brewery Block/or Level(3)  
Reed College to Pittock/Brewery Block/or Level(3)  
Pacific University to Pittock/Brewery/or Level(3)  
Lewis & Clark to Pittock/Brewery Block/or Level(3)  
Clark College to Pittock/Brewery Block/or Level(3)  
University of Portland to Pittock/Brewery Block/or Level(3)  
Washington State University Vancouver to Pittock/Brewery Block/or Level(3) or PNWGP  
George Fox University to Pittock/Brewery Block/or Level(3)  
Linfield College to Pittock/Brewery Block/or Level(3)

### *NWACC Idaho*

University of Idaho to Washington State University Pullman via alternate path

### *NWACC Alaska\**

University of Alaska Fairbanks to PNWGP (connection exists; increase bandwidth)  
University of Alaska Anchorage to PNWGP (connection exists; increase bandwidth)

*\*A separate study, supported by the University of Alaska, will look at increasing connectivity to an additional 17 UA sites.*

**Questions to be answered by the PNWGP in conjunction with the Feasibility Study**

1. Would the bandwidth provided by an advanced network supplant commodity services to some degree or would it be an add-on?
2. What on-going services would NWACC members receive from PNWGP and at what cost?
3. Would on-going service charges be constrained to keep them below private sector or government pricing?

**Questions the NWACC Board will consider in conjunction with the Feasibility Study**

1. How would the total cost of the fiber interconnection be split between NWACC funding and other sources?
2. Would NWACC and/or NWACC member institutions retain an investment in, and/or continuing financial obligations for infrastructure purchased with NWACC funding?
3. Are there ways for smaller institutions to piggyback on infrastructure provided by the larger institutions?

**Accepted on behalf of the Northwest Academic Computing Consortium and the Pacific Northwest Gigapop by:**

\_\_\_\_\_  
Martin Ringle, President, NWACC

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Date

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Amy Philipson, Executive Director, PNWGP

\_\_\_\_\_  
Date