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Ottawa, November 1, 2005

## NCCT Certification of the PBR-1280 System 1.1

### About NCCT

The Network Computing and Control Technologies Research Laboratory (NCCT) of the University of Ottawa, was founded in 1989, and under the direction of Dr. Dan Ionescu undertakes research in the area of distributing computing and data mining, monitoring, and management, as applied to the control and supervision of next generation networks and services. The NCCT contains also one the POPs and the control center of NCIT\*net2 and is a crossing point of the major public and research networks worldwide such as ORION, Ca\*net4 in Canada, Internet2 (Abilene) in the US, GEANT in Europe, etc.

### NCCT & PBR-1280:

As part of its mandate, NCCT undertakes research projects for leading-edge technologies that enable advanced network applications.

The PBR-1280 is unique in its ability to provide a next-generation backbone routing solution that:

- Provides critical in-service maintenance and resilient operations in its software and hardware;
- Guarantees QoS performance regardless of bandwidth or protocol requirements or congestion;
- Enables real-time, latency-sensitive, voice and video service delivery to users, through its unique QoS technologies;

### Certification:

The PBR-1280's features and stability meet NCCT's and NCIT\*net2 network deployment requirements.

During a five-month period, the NCCT team executed a detailed and thorough test plan to assess the PBR-1280's performance and stability in a variety of network configurations that are typical of a backbone network. The test configurations encompassed a combination of Cisco, Juniper, Alcatel, Foundry, and PBR-1280 routers. The tests were successful, and the PBR-1280 System 1.1 is live in the NCIT network.

In addition to meeting the base requirements, the PBR-1280 also delivers superior QoS for mission-critical and time-sensitive services even during periods of severe congestion. QoS is becoming increasingly important in our network as demand for voice- and video-over-IP continues to grow. The PRB-1280's carrier-

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Proprietary Business Information

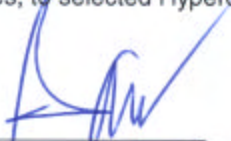
grade QoS, the PBR-1280's Denial-of-Service Protection, and the PBR-1280's operational resiliency (including in-service upgrades) are key functions that we cannot get from our traditional other network equipment vendors.

The carrier grade QoS performance is the result of the PBR-1280's next generation network processor, traffic manager and switch fabric chipsets.

The PBR-1280 features tested and certified are:

- Software redundancy, resiliency and robustness
- Hardware redundancy, resiliency and robustness
- OSPF, ISIS, BGP and MPLS functionality
- Interoperability with Cisco and Juniper
  - OSPF, ISIS, BGP, MPLS
  - SONET
- OAMUsability
  - Statistics collection and Alarm management
  - System management and upgrades
- QoS Functionality and Performance
  - QoS Usability/configurability
  - QoS performance under normal and congestion conditions

NCCT is pleased to demonstrate the PBR-1280 live within NCIT's network facilities, to selected Hyperchip prospective strategic partners.



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Dan Ionescu, Dr. Eng., P.Eng.  
Professor  
Director of NCCT/NCIT Laboratory



## **HYPERCHIP AND NATIONAL CAPITAL INSTITUTE OF TELECOMMUNICATIONS ANNOUNCE SUCCESSFUL MULTI-VENDOR TESTING IN LIVE NETWORK WITH PBR-1280 ROUTER**

*Suite of Multi-Vendor Tests Performed by Leading North American Research Laboratory Verifies Hyperchip PBR-1280 Interoperability and Performance in Heterogeneous IP/MPLS DWDM Network*

Ottawa, Ontario and Montreal, Quebec, Date TBD – Hyperchip and the National Capital Institute of Telecommunications (NCIT) announced today successful interoperability and performance certification of Hyperchip's PBR-1280 IP System, a resilient and scalable QoS platform for the delivery of broadband IP, Ethernet and MPLS services. The interoperability tests included successful testing with IP, MPLS and DWDM equipment from Alcatel, Cisco, Juniper and Nortel. The testing was performed under the direction of Dr. Dan Ionescu, Director of the Network Computing and Control Technologies Research Laboratory (NCCT) of the University of Ottawa (an NCIT funded laboratory), by a team of industry and academia professionals. The certification included deployment of the PBR-1280 in the MPLS over DWDM NCIT\*net 2 infrastructure in live production traffic conditions and the dynamic provisioning of IP and MPLS services with stringent QoS demands over the heterogeneous IP/MPLS architecture of NCIT\*net2.

“The PBR-1280 is at the forefront of a new generation of multi-service systems designed to support the latest IP and MPLS applications that demand ATM-grade QoS over resilient IP and MPLS networks, including IP directly over DWDM optics. Hyperchip's PBR-1280 delivers an interoperable, resilient, scalable, high-performance and cost-effective QoS solutions that fit equally into large telecom and leading ISP networks.

The opportunity to work with a live network and the strong collaboration of industry and academia made the certification of the PBR-1280 possible. The NCIT played a pivotal role in making this happen” said Dr. Ionescu. “Hyperchip systems provide the ideal convergence platform for delivering traditional and new **IP based** services, with Carrier-Class QoS, resiliency and scalability over a cost-effective IP/MPLS network”, said Richard Norman, Hyperchip's CTO. “With the introduction of the PBR-1280 we understood the importance of having independent verification of the product's performance and interoperability. Hyperchip teamed with the NCIT and its NCCT Research Laboratory to perform **complex testing procedures** because of their reputation in the research of information and networking technologies. We are especially pleased with the test results certifying the product's resiliency, QoS performance, scalability and multi-vendor interoperability. This testing is an important milestone, validating the operation of the PBR-1280 in a production network.”

"The NCIT is pleased to bring unique value to partners through a fusion of the innovative capacity of the Ottawa region in telecommunication technologies. Our metro-optical research network, NCIT\*net2, is one such advantage that helps propel great engineering to market through interoperability testing to the latest standards and protocols," said Dr. Robert Crawhall, NCIT

President. "In validating new products such as the PBR-1280, NCIT is instrumental in supporting a new generation of telecom research and development and a strong network for future business."

#### **About the PBR-1280 IP System**

Hyperchip's PBR-1280 is a versatile routing system which delivers the ATM-grade QoS needed for traditional telecom and new IP services, with a distributed, resilient, multi-processor control-plane with scalable routing protocols over a hardware-programmable data plane scalable from gigabits to petabits. The system supports up to sixteen line card modules per half-rack chassis, with 1+1 redundant management modules and redundant DC power configurations. The PBR-1280 supports a wide range of service types including core IP and MPLS routing, label edge routing and Ethernet switching for Metro and regional networks.

#### **About Hyperchip (4198638 Canada Inc.)**

Hyperchip is a leading developer of high-performance network equipment based in Montreal, Quebec that has built the bridge between traditional telecom services and cost-effective IP networks. Hyperchip systems deliver the service quality need for convergence while reducing capital and operational expenses up to 5-to-1 over traditional IP/MPLS networks. Hyperchip has over 20 patents issued and pending on technologies its has pioneered, including its control plane with carrier-class resiliency, in-service upgradability and distributed, scalable routing protocols, and its data plane with carrier-class QoS, in-service scalability and single-pass forwarding across multiple routing domains.

#### **About the NCIT**

Founded in 1999, the NCIT is a fourth pillar organization that unites the capabilities of the National Capital region's federal laboratories, universities, colleges, global corporations and small and medium enterprises to engage in managed strategic research thrusts. The NCIT builds sustainable engineering research infrastructure and develops new channels to commercialization reflecting the evolution of the Information and Communications sector. The Ottawa community is prolific in converting technology to world leading products. The NCIT is a novel approach to maximizing the potential of the region. NCIT members include: Bell Canada, Nortel Networks, Alcatel, QNX, Rational Software, Communications Research Centre Canada, National Research Council Canada, the University of Ottawa, Carleton University, and the Ottawa Centre for Research and Innovation (OCRI). NCIT receives research funding from the Ontario Research and Development Challenge Fund and the research infrastructure support from the Canadian Foundation for Innovation and the Ontario Innovation Trust.

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