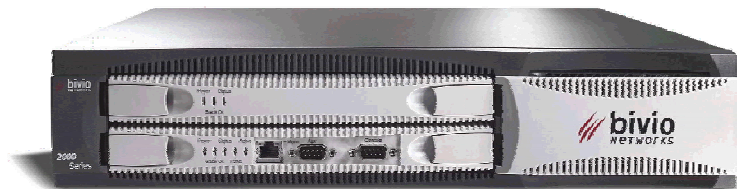


# **Bivio Networks, Inc.**

## **Network Appliance Platforms Federal Government Capabilities Statement**



***Unmatched Flexibility.  
Uncompromising Performance.***

## Bivio Networks, Inc. Network Appliance Platforms Capabilities Statement

### GENERAL:

Founded in 2000, Bivio Networks has evolved into the leading supplier of next generation packet handling platforms and sells its multi-gigabit network appliances to network infrastructure providers as an OEM business model and to the Federal Government. Bivio's products are unique in their ability to combine fully programmable deep-packet processing with deterministic multi-gigabit network throughput for any network service, and thus represent an optimal appliance hardware platform for a new generation of software-based network applications that Bivio's partners are bringing to market.

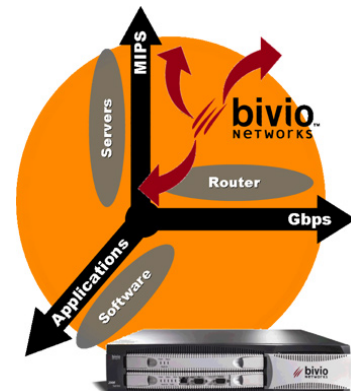
### The Challenge:

The most innovative and fastest growing network applications in the areas of security, VoIP (voice over IP), multimedia, wireless and IPv6 are increasingly being implemented as software applications running on "intel-based" hardware, indicating a fundamental change in the way network services are implemented. But these emerging software-based packet handling applications also demand new requirements from the networking platforms used to implement them. Chief among these new challenges is the demand for multi-dimensional scaling capabilities, led by increasing deep packet inspection, network bandwidth and application agility requirements.

Existing hardware has focused on scaling in a single dimension: For example, networking technology has focused on bandwidth scaling, while server technology has focused on computational scaling. The result has been an increasing gap between the demands of packet handling applications and the capabilities of the existing platforms to satisfy them. In essence, the existing "hardware" platforms have become a network bottleneck in high-speed networks having to "share" memory resources, thus increasing overhead and greatly decreasing performance. As 1GE and 10GE establish themselves as the new connectivity standard in the networking infrastructure, these bottlenecks will only increase unless a new architectural approach emerges which is capable of reconciling what traditionally have constituted mutually exclusive requirements in networking: performance and flexibility.

### The Solution:

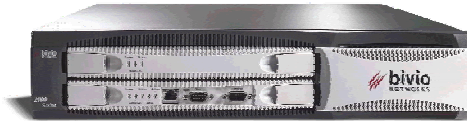
The Bivio unique architectural approach to building a network appliance delivers on the requirement for multi-dimensional scaling in future networking infrastructure, making highly adaptable, high performance networks a reality. The system delivers any networking service with unmatched flexibility and scalability, vastly outperforming other architectural alternatives. Any Linux network application can be easily ported onto the Bivio architecture and accelerated to run at multi-gigabit speeds. The programmable nature of the entire networking and application plane results in the system's ability to adapt to the ever changing nature of the network infrastructure –new applications, changing protocols- as well as the platforms ability to deliver on the long-standing promise of service convergence.



The **Bivio 2000** is a programmable network appliance featuring a groundbreaking architecture specifically optimized for wire-speed execution of emerging network services that increasingly demand deep packet processing combined with high network throughput.

The uniqueness of the low profile (2U form factor) with 6 RISC-based Linux servers, dedicated network processor, 10Gb full-duplex switch and load balancer, is purpose-built for high-performance security, deep packet processing, analysis (lawful intercept) and network applications. This innovative architectural approach delivers a new level of network capabilities and scalability for the Department of Defense not currently available from any other vendor.

The **Bivio 2000** is a programmable network appliance featuring a groundbreaking architecture specifically optimized for wire-speed execution of emerging network services that increasingly demand deep packet processing combined with high network throughput.



### **Bivio's Unique Capabilities:**

The uniqueness of the low profile (2U form factor) with 6 RISC-based Linux servers, purpose-built for high-performance, deep packet processing, inspection and analysis (lawful intercept) and network applications, provides a new level of network capabilities for the Department of Defense that cannot be sourced by any other vendor or manufacturer. In addition, no other vendor can offer:

- 6 RISC-based Linux servers in this form factor that can run multiple classes of network security or other open source GOTS/COTS applications for multiple organizations
- Stackable/Scalable CPU and network architecture
- Separation of the Network Processor and Load balancer in the same appliance with no shared memory resources, which eliminates network traffic bottlenecks and increases security
- Up to 64,000 queues in the network processor to defend against DDOS and other asymmetric network attacks
- Full IPv6 support today
- Bivio Networks is 100% made in USA (both hardware and software development).

The **Bivio 2000** can support a wide range of mission critical network infrastructure and deep packet inspection applications and architectures including:

- Security
- Traffic management
- Compression
- Acceleration (SSL, TCP, XML)
- Layer 4-7 server load balancing
- Lawful Intercept
- Performance monitoring and correlation
- IPv6
- Routing
- Secure VoIP infrastructure
- Wireless infrastructure
- Airborne/Naval Operations

### **Bivio 2000 Features:**

- Powerful computation platform that enables true wire-speed for any service at any packet size
- Cluster of up to 6 RISC-based Linux servers in 2U form factor (can be stacked for more network/processing performance)
- Deep packet inspection and Wire-speed programmable forwarding operations
- Multi-dimensional scaling and hardware acceleration
- Dedicated network processor and Network Processing API with Dynamic data path reprogramming capabilities
- Dedicated network load balancer purpose built in the B2000 appliance
- Flow "cut-through", blocking, pre & post processing
- Low power consumption

### **Bivio 2000 Benefits:**

**True Wire-Speed, Multi-Gigabit Performance:** The unique capabilities of the Bivio 2000 system architecture ensures all deep packet handling services on all interfaces are processed and forwarded at line rate, achieving optimal performance across the spectrum of packet sizes.

**Advanced Traffic Management:** The Bivio 2000 enables hierarchical traffic and user class prioritization and bandwidth shaping on a per flow, per customer and per traffic type basis. All QoS features are completely programmable and implemented via sophisticated nested, standard queuing algorithms and include the following capabilities:

- 4 Gb/s aggregate throughput
- Wire-speed programmable forwarding operations
- Packet inspection & classification
- Modification & transformation (NAT)
- Traffic Management (QoS)

**Scalable Application Processing:** The Bivio 2000 provides unmatched application processing power in a compact 2U form factor, and unlimited processing performance through stacking technology.

**Service Agility:** Any Linux-based networking application can be quickly ported to take full advantage of the Bivio 2000 system performance by using the BivioAPI, thus achieving instant performance differentiation. Due to its fully programmable packet forwarding and application processing subsystems, the Bivio 2000's application flexibility is unmatched by any Intel-based product.

**High Availability:** The Bivio 2000 supports active/active or active/standby system configurations that eliminate any single points of failure to deliver non-stop services, resulting in the ability to support even the most mission critical applications for the Department of Defense.

**Summary:** Bivio Networks, Inc. provides the next-generation network hardware appliance platform specifically tailored to the requirements of packet handling in high-performance networks. The platform delivers a standard Linux-based execution environment augmented by a comprehensive set of common networking and management function that allows for both COTS and GOTS applications to reside and operate at wire-speed in the same appliance, depending on the operational mission.

Bivio delivers the scalable processing power to support DoD Information Analysis requirements and also provides greater overall price-performance than any other COTS solution on the market today.

***For further information, please contact:***

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