

# FlowIntelligence™ ASG

Advanced Application Services Gateway



## Filter

- Deliver Safe Cloud Operations for users, organizations and subscribers of web and cloud application traffic with advanced filtering solution
- Use dynamic web isolation to block access to web sites or Url's with poor reputation or known risks
- Leverage advanced threat intelligence indicators data with risk ratings to block malware hidden in network traffic

## Control

- Inspect traffic for HTTP or HTTPS and implement policies for appropriate or acceptable use.
  - Control applications that traverse internet gateways by IP v4 & v6 address, SNI, Cn, Dn, Url, category or application
  - Set thresholds and rate limits for applications with dynamic actions
- Enforce information assurance and protection policies for Office 365 applications

## Operate

Virtual and physical solutions

- In-line, transparent operations at speeds up to 100Gbps (Full Duplex) for hardware appliances
- Automated updates of reputation data, threat intelligence indicators, and standard filtering rules via FlowIntelligence Cloud
- Implement custom or enterprise-specific rules
- Robust, hardened platform with hot-swappable components for non-stop operations

## Safe Cloud-as-a-Service

The rapid adoption of cloud-based applications and the reliance on the world-wide web to deliver services creates additional pressure on enterprise IT operations and cloud service operators to filter, control and operate safe cloud services. Mobile users, Internet-of-Things (IoT), SCADA and streaming services adds complexity and challenges for cloud and security operations teams. They now have to address multiple questions for the cloud ecosystem, that includes:

- *How does my company effectively operate, monitor and manage cloud services including permissible applications as well as effective application bandwidth provisioning and management?*
- *How can my company manage and control the types of applications as well as web locations that are accessed through the cloud ecosystem?*
- *How can my company ensure that cloud operations meet data regulations and compliance requirements?*

- *How can my company protect users, the organizations and other cloud subscribers from threats, web services or sites with poor reputation or know risks, identify potential applications that may be harmful to users or subscribers, block known malware embedded in cloud traffic?*

Bivio Network's FlowIntelligence™ Application Services Gateway is a key component of the FlowIntelligence family of cloud solutions for operating effective private, hybrid or public clouds. It answers these questions plus provides proactive, dynamic and safe cloud capabilities. Bivio Networks Powers Advanced Cyber Operations™ with FlowIntelligence cloud solutions that enables on-demand feature-rich applications to enterprise users and cloud operators. Each FlowIntelligence ASG platform is a powerful URL and application filtering solution with advanced features that control, protect and operate the cloud environment.

The advanced features of the solution ensure that an organization can control, secure and optimize cloud operations through advanced filtering capabilities. The cloud services gateway solution is designed to support enterprise, data center and service provider cloud operating environments. It is a high performance and secure URL and application filtering solution.

## Key Capabilities

The FlowIntelligence ASG provides enforcement of organizational policies for cloud access, services and applications. The key capabilities include:

### URL Filtering and Categorization

Employ dynamic, risk-ratings and reputation-based data with real-time global threat intelligence. Classify URL's into one or more of 50 content categories, multiple categories blocked by default with real-time alerting.

### Inspect Traffic

Inspect traffic and make decisions based organizational policies. Analyze HTTP and HTTPS (with JA3) to identify operational and security concerns. Perform Base64 analysis on Email traffic and identify policy violations. Analyze DNS for suspicious domains with deep analysis and policies. Take actions to control access into or out of the cloud based on specific elements of the network traffic.

### Limit Applications

Limit bandwidth consumption for specific applications. When an application reaches the organization's consumption policy, automated processes can be employed to leverage thresholds for implementing rate limiting or dynamic actions such as blocking.

### Embedded Advanced Threat Protection

Leverage multi-layered cloud defense with heuristics and malware analysis to block advanced persistent threats to or from the cloud. Implement custom whitelist/blacklist coupled with file and web reputation data for reputation analysis and blocking. Block threats from nefarious DNS activity. Tune policies with Threat Risk and GeoIP Location data for advanced cloud protection.

### Malware Analysis

Protect users and subscribers from embedded malware. Automatically block known web sites or URLs engaging in drive-by malware delivery. Perform deep file inspection to identify files in a network flow that may contain embedded malware with an advanced machine learning-enabled malware analysis engine. Interface with malware sandbox technology to deliver files of interest for indicators of compromise analysis.

### Ease of Implementation and Operation

The Cloud Services Gateway operates in transparent mode and does not require an IP address for either the outside or inside interface(s). Simply provide a local IP address for the management and data off-load interface, configure the destination for the log data, place the system inline and begin operations. It's just that simple!

### Friction-less Information Updates

PCRE Rules and Threat Intelligence data are updated through the Bivio Networks FlowIntelligence Cloud. Rules and threat intelligence indicators of compromise data can be updated as often as the cloud operator desires in intervals as short as five (5) minutes. Typical rules updates are performed every day to pick-up additional rules that are developed and released daily. Operating environment and application updates are done on an "as needed" interval and typically the cloud operator would be notified by Bivio Networks Technical Assistance Center to initiate a system update.

### Integrated Monitoring and Management

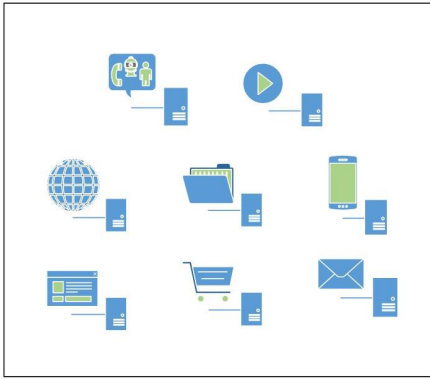
FlowIntelligence ASG is managed via Bivio's Systems Management Center. It provides health monitoring of the FlowIntelligence platforms and Application Services Gateway application instance(s) implemented in the environment. Systems Management Center delivers analytics with advanced machine learning for analyzing the platform and applications operating environment with integrated forecasting. Manage and control each ASG instance with Systems Management Center. Stop-Start-Reconfigure the platform and web filtering application with a visual workflow engine. Deploy custom filtering rules through a one-touch interface and visual workflow engine. FlowIntelligence ASG also interfaces with third-party logging, security information and event management or operational analysis tools. *Contact your sales team for more information.*

### Secure Operating Environment

FlowIntelligence ASG is integrated on Bivio's family of FlowIntelligence Adaptive Cyber Defense Platforms. These platforms are scalable, high-performance, secure and robust compute platforms. They feature a Secure RedHat® Enterprise Linux operating environment. It delivers an architecture that enables FlowIntelligence ASG to operate in a high assurance mode. This is achieved through a unique architecture that segments the management control plane of the Application Services Gateway from applications processing of the user's data plane.

### High Performance

No custom FPGA or packet processing cards required - The heart of the platform includes BiviOS® middleware. This is Bivio Networks unique, robust packet processing middleware technology that provides loss-less packet processing. It enables the platforms to scale with packet acceleration technology for operating the FlowIntelligence ASG solution at speeds in excess of 100Gbps.



## Non-Stop Operations

FlowIntelligence platforms contain many features for non-stop operations. The hardware platforms provide high-availability features such as redundant M.2 boot and operating system storage devices, redundant load sharing and hot-swappable power supplies, redundant network interfaces, redundant management interfaces, redundant data interfaces, dual or quad processor environments and Raid-1 storage for log retention. The embedded packet processing and applications management middleware – BiviOS® ensures non-stop, loss-less packet processing operations for the application processing environment. Bivio Networks can include an optical bypass switch in conjunction with each platform to provide network bypass in case there is a complete system failure



*FlowIntelligence ASG provides URL and application filtering with automated – commercial and custom PCRE rules. Threat Intelligence Indicators provide advanced, intelligent information to aid in the filtering process of malicious URL's and Domains.*

## Platforms to Meet Your Requirements

The platforms are provisioned in three classes to meet a cloud operator's requirements. The Enterprise class platform supports network speeds at 1, 5 and 10Gbps. The Data Center class platform supports speeds at 10 – 40Gbps. The Service Provider class platform supports speeds from 40-100Gbps. Each platform contains multiple packet processing interfaces for primary and redundant or back-up external-internal network connections. Each platform can be shipped with an optional companion network bypass switch for inline operations on each interface pair to eliminate network outages in the unlikely instance there is a total system failure. *Go Virtual* - FlowIntelligence can also be implemented as a virtual KVM appliance in Private, Hybrid and Public cloud environment at speeds up to 10Gbps.

## FlowIntelligence ASG



**1, 5 and 10Gb/s platform**



**25 & 40 Gb/s platform**



**100Gb/s platform**

## Ready to Operate

FlowIntelligence ASG is ready to operate out of the box. It ships with a current PCRE rules-base and threat intelligence indicators to provide immediate operational impact. Bring your own PCRE rules - Implement custom PCRE filtering or protection rules and deploy them with Systems Management Center for rapid operational effectiveness.

## Summary

The FlowIntelligence ASG is a high performance, comprehensive solution for providing advanced filtering, control and operations for cloud environments. It scales to meet each organization's URL and Application filter requirements, regulatory and FlowIntelligence ASG contains enhanced features that provide network security functions to ensure that users and subscribers are protected from network threats or malware. It is supported by an integrated monitoring and management solution The solution is in an elite class for speed, performance and capabilities.

## Recommended Services

ExpertSupport™ aids organizations with proactive support for critical systems. ExpertSupport provides comprehensive software and hardware support to organizations with standard Monday through Friday, 8-5PST or ExpertSupport Plus with 24-hour, seven days a week and ExpertSupport Pro with 24-hour, seven days a week that can include advanced replacement of a failed module. *Contact your sales team for information on ExpertSupport™ - Mission Critical Services.* ExpertAssist™ delivers on-site services with engineering and consulting services to provide installation or more detailed and complex technical services.



## Specifications:

Features	1 - 10Gbps	25 & 40Gbps	100Gbps
Operating Speeds	1, 5 & 10 Gigabits per second (Full Duplex)	25/40 Gigabits per second (Full Duplex)	100 Gigabits per seconds (Full Duplex)
Network Interface	4x 1Gbe RJ45 Copper or 4 x 1/10 SFP+ Optical or Copper Interfaces	4x25 Gigabits QSFP28 interfaces or 4 x 40Gbps QSFP Interfaces	2 x Packet Interface Modules with Dual 100 Gigabits Ethernet QSFP interfaces
Data Interfaces	2 x 1Gbe RJ45 Copper or 2 x 1/10 SFP+ Optical or Copper Interfaces	2 x 1/10 SFP+ Optical or Copper Interfaces	2 x 10Gbe Copper
Management	2 x 1Gbe RJ45 Copper		
Local Storage Capacity (Max)	30 TB SSD Fast Read	M.2 Dual 480GB (Raid-1) Boot and Operating System Storage. 100TB SSD Fast Read Data storage	M.2 Dual 480GB (Raid-1) Boot and Operating System Storage. 384TB SSD Fast Read
Power	Dual 120/240vac, 750w Hot-swappable PSU's	Dual 240VAC, 2000w Hot-swappable PSU's	Six (6) Grid 240VAC, 3000w Hot-swappable PSU's with Grid Redundancy
Cooling	Five (5) hot swap fans standard, Eight (8) - Maximum	Six (6) hot swap fans	Four (4) Front, Five (5) Rear hot swappable fans
Chassis Size	1.69" x 18.98 x 31.8" (One Physical Rack Unit)	3.4" x 17.08 x 32.09" (Two Physical Rack Units)	12.10" x 18.98" x 32.16" (Seven Physical Rack Units)
System Weight	48.3lbs	80.7lbs	~400lbs (fully loaded chassis)
Safety Compliance	US/Canada: UL/CSA 60950-1		
Electromagnetic Compliance	USA/Canada: FCC Part 15 and GR-1089 Europe: EC Directive, EC Council Directive 2004/108/EC, ETSI EN300 386, EN55022, EN 55024 International: CISPR 22 Class A and CISPR 24		
Hardware/Software support	Annual hardware/software support for platform and operating environment – must be included at time of purchased. Contact your Bivio Networks account team for specific information on levels of support available.		
Licensing – Application, rules, threat intelligence license	Licensing for Application, rules and threat intelligence data is an annual subscription. Contact your Bivio Networks account team for specific information.		

### About Bivio Networks

Bivio Networks is a leading provider of network systems for securing, monitoring and controlling critical network infrastructure. Bivio's global customer base includes fortune 1000, worldwide government agencies and service providers. Bivio's products enable customers and partners, who include application developers and systems integrators, to develop and deploy leading solutions to secure, monitor, control and operate customer networks. Bivio is privately held and headquartered in the San Francisco Bay area with office locations worldwide. More information is available at [www.bivio.net](http://www.bivio.net).

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