



Service Assurance for a New Generation of SIP Services

IPTEGO's Palladion Service Assurance solution equips service providers with the operational, customer care and marketing tools to face the new realtime service assurance challenges brought about by the increasing use of SIP services.

Customer care, operations and marketing teams within service providers will use Palladion to enhance and protect their revenues, reputation, services, networks and, ultimately, their customers' quality of experience. Palladion brings to bear a unique and advanced blend of realtime behavioural monitoring and SMART¹ attack detection. Its reporting and alerting capabilities allow a proactive response to a broad range of threats to customer service levels in SIP networks. Palladion therefore allows service providers to create competitive differentiation through enhanced service levels and an improved customer experience, whilst making the job of running SIP based infrastructure considerably more straightforward.



Who will Benefit from Palladion?

Palladion is intended for any service provider that needs to monitor and report on multiple aspects of its current (for example VoIP) and future SIP infrastructures including IMS. This embraces fixed, mobile and cable service providers of all sizes, as well as ISPs and government agencies. Palladion's Service Assurance capabilities are very flexible, and provide service providers with a realtime view on critical issues such as:

- How healthy is the network?
- Which services are being used?
- How are the services being used?
- Are services being abused?
- Are revenues being protected?
- Are customer SLAs being met?
- Are customers being protected?
- Are regulatory requirements being complied with?

Palladion creates a service and quality assurance environment that positively addresses these issues and many more.

Using Palladion to Assure your Services Today

Palladion is already in service with a broad range of innovative service providers who, with help from IPTEGO, have realised its Service Assurance value in terms of differentiated services and a higher quality of customer experience. Some of the more commonly used features of the Palladion Service Assurance solution are highlighted below.

Palladion Features		Customer Care	Marketing	Operations Security	Operations
Realtime Monitoring	Monitors realtime SIP traffic	✓	✓		✓
Response Time	Measures system performance to prevent possible service outages		✓		✓
Call Viewer	Monitors subscriber behaviour to detect service abuse		✓	✓	✓
User Tracking	Monitors and tracks all subscriber SIP events	✓		✓	✓
User Agent Statistics	Monitors and analyses statistics for all deployed SIP clients		✓		✓
SPIT	Detects Spam over Internet Telephony abuse of service	✓		✓	
Captures and Traces	Provides detailed statistics to thoroughly investigate service problems e.g. 'packet of death'			✓	✓
Service Detail Records	Provides details of service usage parameters, including such items as VoIP CDRs	✓	✓		✓
Audio Quality	Monitors the quality of audio streams	✓	✓		✓

¹ SMART attacks - Sequential Malicious Abuses of Rate and/or Time

Proactive Customer Care

Competitive differentiation is about more than innovative services.

Increasingly it focuses on an innovative Quality of Experience (QoE) for the customer. The QoE encompasses the innate service levels reflected in the network applications and the whole customer care experience. Traditionally, the management of both of these components – SLAs and customer care – has been reactive. Palladion changes all of that by giving operational teams the ability to predict and pre-empt service degradations, in the best case avoiding issues before they arise and in the worst case allowing customer service teams to proactively alert customers to impending issues – before they place a call to the help desk. In addition, the ability to collect and replay historical network usage data allows for the rapid identification of the root cause of problems, a swifter remedy, and hence faster closure of customer trouble tickets. When used in this way Palladion enhances customer QoE whilst reducing operating costs.

Eliminating New Threats to SIP services

Providing a new generation of SIP services requires the management of a plethora of evolving and expanding risks to the SIP user and SIP infrastructure. Many of these threats have an immediate effect on the quality of user experience due to the realtime nature of many SIP services.

These threats include:

- Spam-over-IP-Telephony (SPIT)
- Service hijacking & revenue theft
- Denial of service
- Unauthorised call monitoring
- Call-routing manipulation
- Malicious attacks
- Identity theft and identity impersonation
- Service fraud and dysfunctional SIP clients.

Intelligent Marketing

To build market share and increase average revenues per user, marketing teams need to understand how existing services are being used, and by whom. Such information is invaluable to marketing teams charged with the construction of highly targeted marketing and sales programmes - and Palladion delivers it. Take the example of business users who regularly make use of voice mail services but do not use conferencing services. By tracking the use of services down to an individual user level, Palladion can provide the key triggers and data for highly relevant, precisely timed campaigns targeting individuals or groups of customers. In addition, Palladion provides the details of which services are successful and which services are falling below expected uptake levels, allowing marketing to report on the status of services uptake as well as taking action to address services which are not meeting business expectations.

Beyond SBC Security

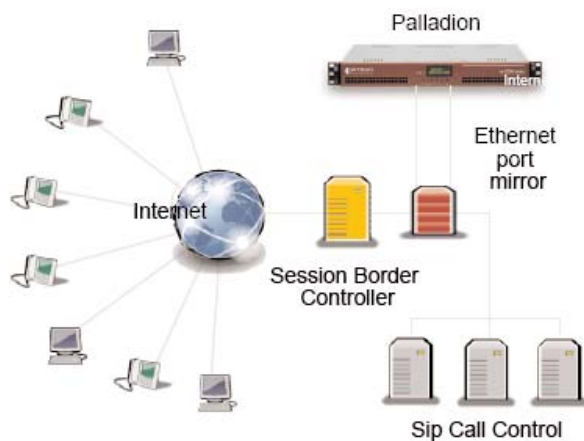
Session Border Controllers (SBCs), which are widely deployed in new generation networks today, provide network security and protect against threats such as unauthorised access and DDoS attacks. But how do service providers prevent 'legitimate' users from abusing SIP services and threatening the integrity of the SIP infrastructure? Palladion ensures that only appropriate user behaviour is allowed within the network, protecting the infrastructure and its users from abuse. The solution assures call quality, whilst underpinning compliance with regulatory requirements such as lawful intercept and data retention.

SMART Attack Detection

Palladion's SMART attack detection capabilities provide a threat response mechanism for attacks such as SPIT and revenue abuse. Palladion goes beyond the deep packet inspection solutions typically found in today's VoIP networks by providing a comprehensive insight into SIP based activities and service behaviour. Palladion continually analyses every user's behaviour and correlates it with multiple SIP events across the network. The system can therefore detect behaviour patterns that deviate from the norm and raise alerts for further investigation and action. It detects the level and type of threat to both the SIP user and SIP infrastructure and applies a set of policies to prevent attacks. In addition, Palladion audits new devices (subscriber and infrastructure) to identify vulnerabilities that may lead to threats and attacks. As a purely passive device, Palladion works in a high performance stealth mode so that it is shielded from attackers and abusers.



Deploying Palladion in Service Providers' Networks



The Bottom Line

With the deployment of a new generation of SIP services comes customers' expectation of a new Quality of Experience. QoE is ultimately a very subjective measure, derived from the ease of use, reliability and perceived value of the new services, and the efficiency and tone of every facet of customer services. A strong QoE differentiates otherwise comparable services in a competitive marketplace, supports premium pricing, and reduces churn through enhanced loyalty. Palladion's Service Assurance abilities provide a strong foundation for enhancing QoE.

Moving away from end users and focusing on managed services and wholesale markets: Palladion's ability to monitor, track and analyse customer and service behaviour provides a further foundation for incremental revenue generation. For example, Palladion's Service Assurance capabilities can remove the need for a wholesaler's customers to provide their own first line customer support. Instead, the wholesaler can provide a managed customer care service. Hosted SMART attack detection, alerting and revenue protection services give the wholesaler a further opportunity for incremental revenue.

As mentioned earlier, the service provider's marketing team can further exploit the service usage intelligence provided by Palladion to increase penetration of current SIP services, intelligently market new, incremental services and in so doing increase revenues and loyalty.

The bottom line: IPTEGO's Palladion Service Assurance solution will increase revenues and profitability.

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Total Flexibility

Palladion can be configured to provide Service Assurance to a single dedicated network or multiple virtual networks. For example, a SIP services wholesaler could assure many retail partner networks with a single device. Likewise, a provider of managed VoIP services could use one Palladion to assure many enterprise customer networks.

Palladion can either be deployed as a discrete solution alongside existing third party hardware and software, or as part of the IPTEGO UniverSIP total solution for new value added services.

Palladion is compatible with a full range of SIP protocol implementations and infrastructures including IMS environments. Palladion has no actual IP address association, which makes it invisible to abusers and hackers: the traffic is simply copied to the Palladion by a port mirror function through a pair of 1 Gbps links. A single 1U high Palladion appliance can support up to 50,000 SIP messages per second (approximately 7,000 calls per second).

Palladion readily interfaces to external systems (including SNMP) and exports captured information in the form of Service Detail Records for further analysis. In addition, Palladion generates Call Detail Records (CDRs), which can be exported to external billing systems. The comprehensive, powerful and web based Palladion user interface greatly simplifies problem identification, resolution and reporting.



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