



SIPHON Assurance
**Service Assurance &
Fraud Detection**

Version 1.0

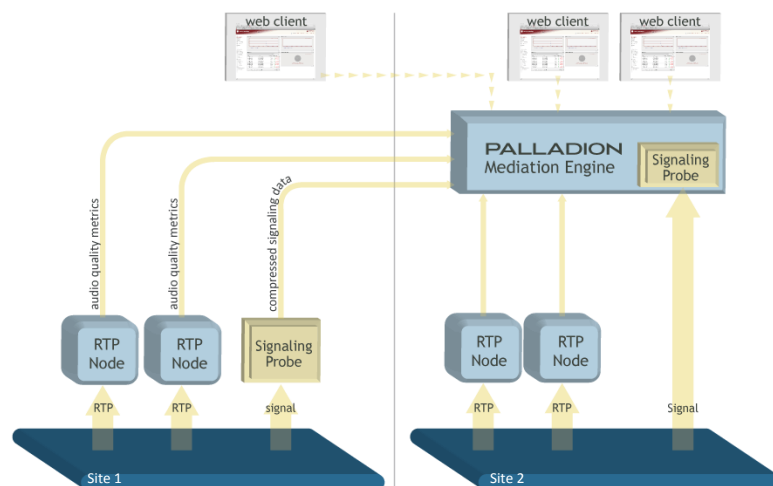
1 INTRODUCTION

Hosted IP Communications providers are continually striving to improve the quality of service delivered to customers, whilst at the same time looking to reducing operating costs. This is made more challenging through the constant threat of Fraud presenting a great risk to lose a huge amount of money in a matter of hours. SIPHON Assurance, based on the IPTEGO PALLADION software suite, has been designed to specifically address these challenges for Hosted IP Communications providers enabling:

- **Cost Reduction** – through significant reduction in the time to close trouble tickets via advanced troubleshooting and reporting functionality.
- **Network Independence** – providing complete autonomy of the vendor systems deployed supporting a multitude of signalling protocols and deployment models.
- **Improved Service Quality** - through constant monitoring of the service infrastructure, enabling upcoming issues to be identified before services are affected.
- **Revenue Protection** - enables fraudulent behaviour to be detected via automation, meaning there is no need to configure complex behavioural pattern of users.
- **Increased Service Revenues** - enables capabilities to be made available in a partitioned manner offering Service Assurance to resellers or end customers on a monthly subscription basis.

2 SYSTEM ARCHITECTURE

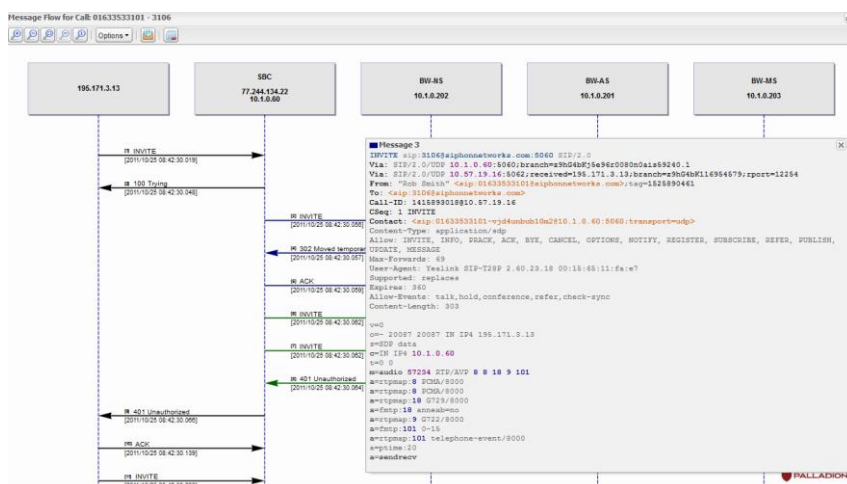
PALLADION is a non-intrusive monitoring solution which is completely vendor-agnostic supporting any Unified Communications network environment. The system provides real-time correlation of call and registration data providing an end-to-end network view, allowing service related issues to be quickly identified and resolved.



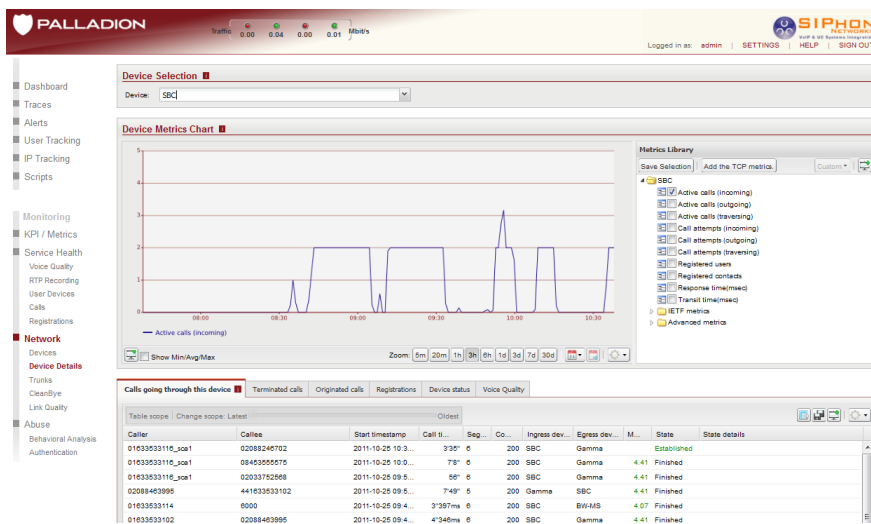
PALLADION is fully distributed in design and comprises a number of logical components, including Signalling Probes, RTP Probes and Mediation Engine - this component is forwarded compressed data from probes and performs all correlation, storage and analysis functions providing a Web interface. Deployment of CPE Probes also presents a view of voice quality at both the Core network and Enterprise network locations.

3 MONITORING, TROUBLESHOOTING & REPORTING

The PALLADION software suite provides operational teams with a real-time view of the network and associated services. This decreases the time to close trouble tickets, increasing customer satisfaction by providing prompt and efficient support. PALLADION summarises service activity as an end-to-end graphical call flow - this powerful feature enables administrators to easily and readily diagnose correct, incorrect, or even suspicious call activity.



PALLADION provides a comprehensive suite of network wide measurements by which the efficiency, performance, progress or quality of the underlying service environment can be assessed. An overview and status of all configured platforms is also provided - selecting a device aggregates information about the individual platform and presents an extensive range of KPI Metrics.



Through constant monitoring of the service infrastructure, including metrics such as message processing times and response times of critical network equipment, PALLADION enables upcoming issues to be identified before services are affected.

4 MEDIA ANALYSIS

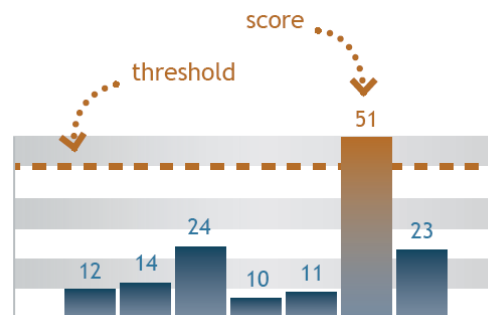
PALLADION enables the analysis of RTP traffic for identifying voice quality problems measuring the audio quality for each call. The system can measure Jitter, Packet Loss and Burst Packet Loss for the subscriber data stream and estimate important voice quality factors such as the Mean Opinion Score (MOS) or R-Factor.

In addition to measuring and reporting on voice quality PALLADION provides the capability to capture the RTP streams of particular calls, in addition to the signalling messages. The system provides fine-grained control on which calls to record by defining the numbers or number ranges allowing recorded calls to be downloaded in PCAP format. This enables operational teams to further analyse media quality issues through capture and playback of problem calls.

5 FRAUD DETECTION & PREVENTION

Fraud continues to be a significant threat to any hosted unified communications service environment. Large sums of money can be lost in relatively short timeframes through various VoIP related attacks. Fraud Detection & Prevention from IPTEGO is a solution which uses a technology which is fundamentally difficult to scam - automated behavioural analysis. Built upon the PALLADION software suite, it is a passive monitoring system collecting real-time information about all calls, users, customers and trunks.

PALLADION monitors all participants in a network, and reports current encrypted usage information to the Fraud Detection & Prevention system which automatically learns behavioural patterns of all participants over time. Any deviation from a user's behavioural pattern may suggest that the network is facing a fraud attack.



Surpassing a defined threshold causes an alarm to be raised. Thresholds can be either statically defined values or dependent on a counter or KPI. Fully automatic thresholds based on previous behavioural patterns however are widely recognised as the most powerful method for detecting fraud. Once a threshold is reached calls can be blocked using APIs of existing network elements from vendors such as Broadsoft.



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