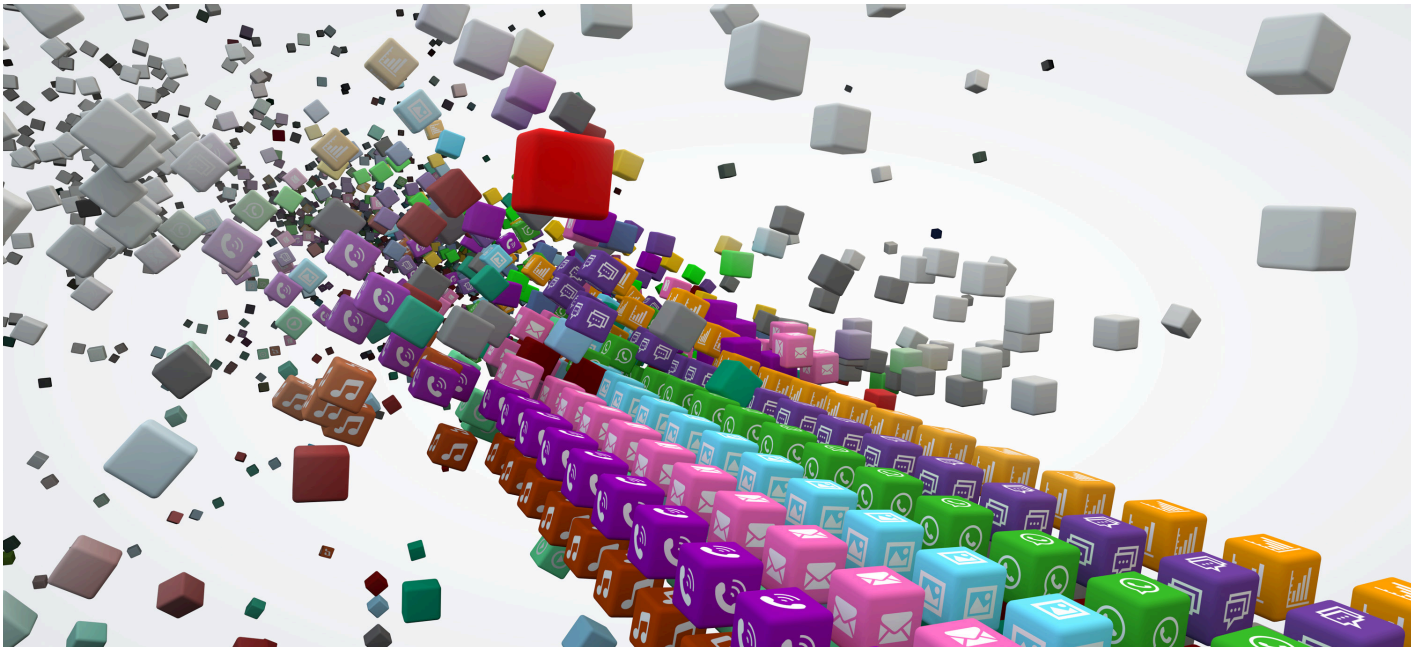
PRODUCT BROCHURE

PACE 2.0

PROTOCOL AND APPLICATION DETECTION WITH METADATA EXTRACTION

ipoque's PACE 2.0 is a software library using different technologies - deep packet inspection, behavioral, heuristic and statistical analysis - to reliably detect network protocols and applications and extract metadata in real-time, even if they use advanced obfuscation and encryption techniques. PACE 2.0 is used by network equipment and security vendors to enhance their products with state-of-the-art protocol and application awareness capabilities to deliver full visibility into IP-based network traffic.

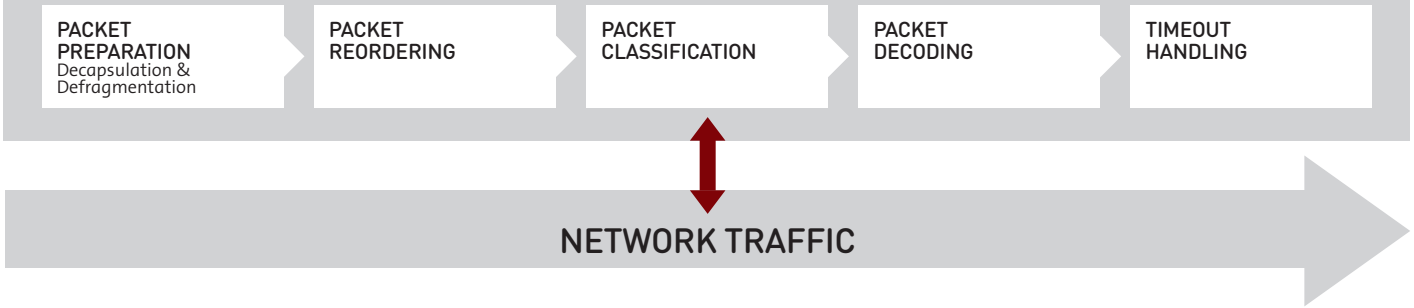


Designed by ipoque engineers and developers with years of experience in Layer 7 protocol and application awareness, PACE 2.0 accelerates time to market and is designed for quick and easy integration. PACE 2.0 reduces costs and risks for vendors compared to developing a solution in-house and can be deployed in a variety of use cases including Network Security (IDS/IPS, Next Generation Firewalls, SIEM, UTM), Network Monitoring and Traffic Management, Policy and Charging, Application Delivery and Optimization, Analytics and Business Intelligence, Mobile Gateways and Mobile Data Offload.

AT A GLANCE

- Full visibility of protocol and application detection including service recognition, e.g. chat, video, voice, file-transfer
- Identification of thousands of applications with frequent updates
- Highly accurate real-time detection rate with 100% reliability
- Best memory utilization efficiency on market
- High performance for core network links with speeds to 100 Gbit/s and faster
- Metadata extraction including session performance data and intelligent correlation of data and signaling
- Flexible and seamless integration in various network products
- Continuous up-to-date support for the latest protocols and applications

PACE 2.0 – IP CLASSIFICATION & METADATA EXTRACTION



BENEFITS AND KEY FEATURES

FAST PERFORMANCE

- High performance with speeds of 10, 40 or 100 Gbit/s and faster
- Optimized code for high-end multicore technology
- Built-in multi-core support provides linear scalability
- Integrated highly-optimized flow tracking for millions of concurrent connections
- Developed entirely in C code without any external dependencies

FLEXIBLE AND EASY INTEGRATION

- Independent from hardware platform
- Runs on any Linux, Mac, Solaris and Windows
- Fully documented APIs, including code samples
- Professional services for all stages of integration
- Native C Interface

QOS/QOE ANALYTICS

- VoIP/VoLTE performance measurements (e.g. call completion rate, jitter and packet loss rate)
- Volume counter - in total or per subscriber (e.g. throughput, IP packets, IP flows)
- Statistical traffic measurements (e.g. SYN/ACK to ACK round-trip time and TCP out-of-order counter)

THIRD-PARTY NETWORK I/O SUPPORT

- Unique easy-to-use packet processing engine provides a complete software solution to build custom applications
- Functionality abstraction of packet-processing and analyzing engine
- Optimized to support different network interfaces, e.g. Intel, Napatech, PCAP etc.
- Includes multi-thread support for high performance use cases
- Auto-detection of interface types including easy configuration (SPAN vs. Management vs. Capture)
- Includes a wide variety of different analyzing modules for deeper insight on protocols, applications and flows
- Comes with a programmable API which enables input- and output modules to easily extend the analytics capabilities
- Ready for SDN/NFV

BEYOND PROTOCOL AND APPLICATION VISIBILITY

- Full TCP reassembly to handle fragmented, duplicated and out-of-order packets
- Decapsulation support for tunneled traffic
- Suitable for bi- and uni-directional network traffic
- In-house developed, 100% proprietary code provides clean licensing without GPL compliance issues

EASY UPGRADE TO ADVANCED METADATA

- Easy upgrade phase from packet classification to advanced metadata extraction including decoding events
- Detail of data extraction configurable to fit customer needs while reducing integration effort
- Universal API (UPI) for flexible integration into different applications, so can directly use all PACE 2.0 features in a consistent manner
- Component API for using single components separately to build special applications not covered by the UPI

CUSTOM DEFINED PROTOCOLS

- Ready-to-use PACE 2.0 extension for defining your own protocols and applications, independent of existing signature database
- Customization of existing protocol and application detection

ALWAYS UP TO DATE

- Frequent updates of protocol and application detection ensure market-leading detection accuracy
- Active monitoring of ever-changing apps speeds up protocol and application maintenance cycle

SPECIFICATIONS

Supported Environments	
Operating Systems/Distributions	Linux Standard Base, Windows, FreeBSD, Solaris
CPU Architectures	x86: x86_32, x86_64, PowerPC, MIPS, e.g. Cavium Octeon
Applications and Protocols Supported Examples*	**VoIP / Messaging:** Skype, Oscar (ICQ & AIM), SIP, Skinny, H323, WhatsApp, WeChat, LINE etc. **Social Networking:** Facebook, Twitter, MySpace, LinkedIn, Sina Weibo, Instagram, Tumblr, RenRen etc. **P2P / Filesharing**: BitTorrent, eDonkey, Rapidshare, Uploaded.to, Xunlei, 4shared etc. **Streaming:** YouTube, Netflix, Hulu, Deezer, MyVideo, Vimeo, QQLive, Youku, iTunes Radio etc. **Enterprise:** Citrix, Blackberry, SAP, MS Lync, MS Exchange, Lotus Notes, WebEx etc.
Examples of Metadata*	**Traffic volume:** per user, per protocol, per application, etc. **QoS KPIs:** Jitter, Throughput, Latency, Roundtrip time, Packet loss rate (per direction), Packet direction, etc. **User ID:** MSIDN, Diameter/ RADIUS login, Mail address, Callee, Caller, Sender, Receiver, etc. **User info:** Callstate, Used operating system, Tethering status, Clicked URL, etc. **Client/Server indication:** per subscriber

* A full list of protocols, applications and metadata supported will be provided on request.