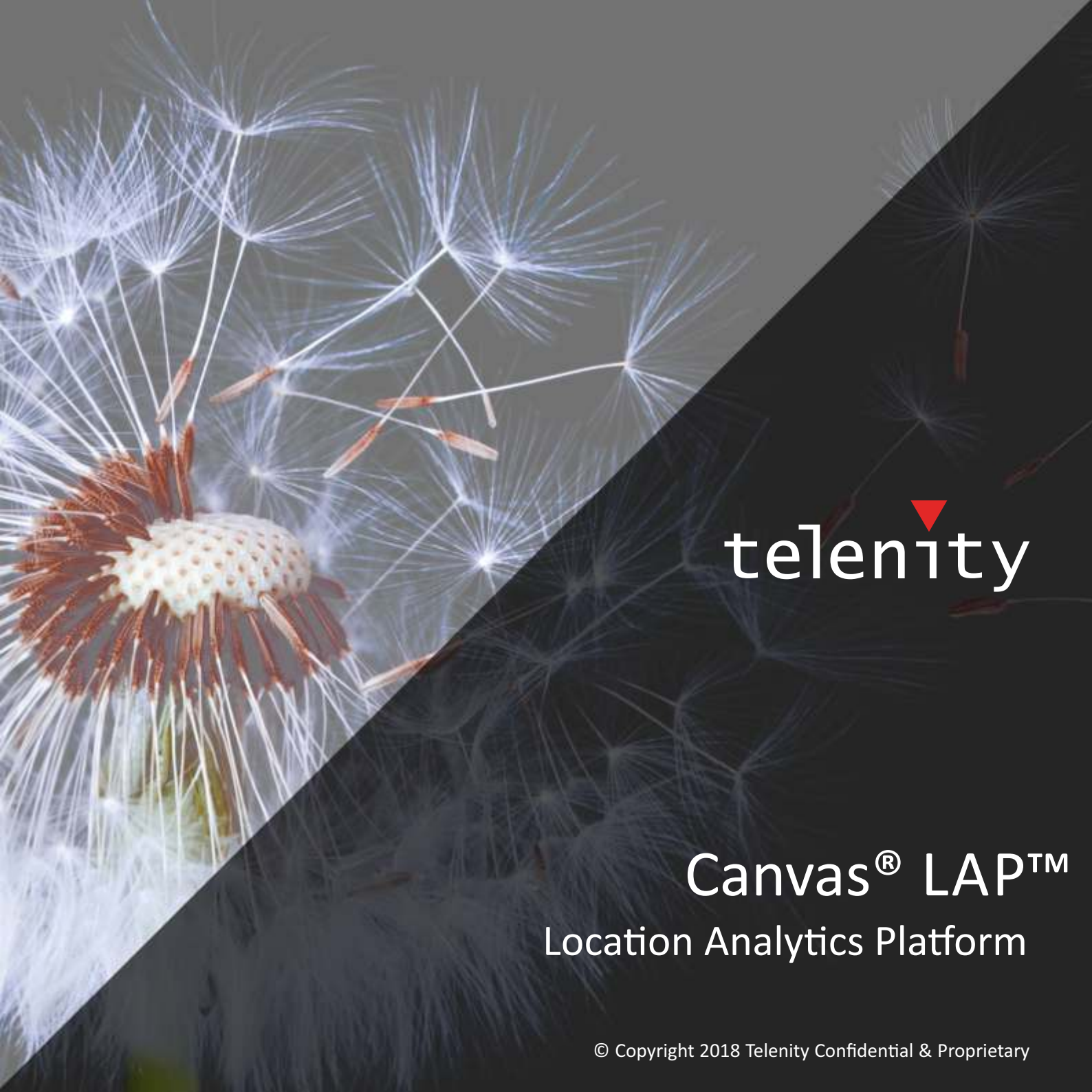


telenity

Canvas® LAP™

Location Analytics Platform

Canvas® LAP™, Location Analytics Platform

Location Analytics is an enhanced way of collecting, harvesting and correlating the historical location data from massive number of network modules including different kind of network generations. For the last ten years, the use of location data has always been an important interest for CSPs to drive different business channels and monetize the historical data. However, it is only in the last few years, real traction has been initiated. The main reasons are being:

- New big data solutions allow cost-effective storage and manipulation of large datasets that is provided from any nodes of the CSP network.
- The historical location data offers a wide range of use cases and opportunities with digital transformation of existing services.
- Active Location Detection Methods always had limitations based on high CAPEX investments, additional licenses based on number of queries/geo-fencing/tracking, no capability to provide a list of subscribers within a zone without specific methods which create huge network loads.
- Since the whole network became fully IP based with the LTE technology, it became easier to monitor and tap the necessary network elements.

Canvas® Location Analytics Platform (LAP) is designed to cover a wide range of requirements of CSPs for location-based advertisement, lawful enforcement, public safety, security, smart city, and so on. Canvas LAP provides CSPs to monetize readily-available subscriber location info, enables them to serve to the needs of a variety of businesses or any agencies and offers a wide range of diverse LBS/LBA capabilities some of which are not feasible via conventional methods. The historical data that is kept in Canvas LAP is available to be used for any kind of information set such as density management, trends or behaviors of specific regions/subscriber base, predictions based on intelligence and much more.

In today's highly enriched environment, Canvas® LAP™:

- Provides seamless service availability and continuity to the end users, which can work on their legacy (2G/3G) as well as next generation infrastructure (4G/5G)
- Supports millions of subscribers and thousands of applications and application developers
- Minimizes time and cost to market of applications
- Drives revenue growth from new channels outside of their traditional business
- Allows CSPs to efficient use of their investment in radio & core network, improve planning
- Execute highly targeted campaigns/ advertisements/public warnings etc.
- Conduct large-scale use cases including transportation, justice, health & human services, disease control etc.
- Increases utilization/uptake of bearer services such as location based bulk messaging
- Provides location-based subscriber density monitoring and improves network management and capacity planning for CSPs.

Benefits

Price/Performance combination enables wireless operators to start with a small system, reducing operational costs, and grow to a larger capacity according to their entire subscriber base.

2G/3G/4G/5G Support is provided in the same system enabling wireless operators to achieve more economical deployments by offering an extremely small footprint that significantly reduces total cost of ownership.

Various business models are supported including Capex, monthly-installment CAPEX, Revenue Share, and Managed Services.

Product Overview

Canvas® LAP™ is a future-proof solution with a smooth migration path to next generation services, as well as, the ability to provide legacy support.

Canvas® LAP™ is a carrier grade solution which provides gathering location information from different sources in CSPs' networks and provides auto notification based on subscriber movements. It empowers readily-available subscriber location info to be harvested and enables a wide range of diverse LBS/LBA some of which are not feasible via conventional methods.

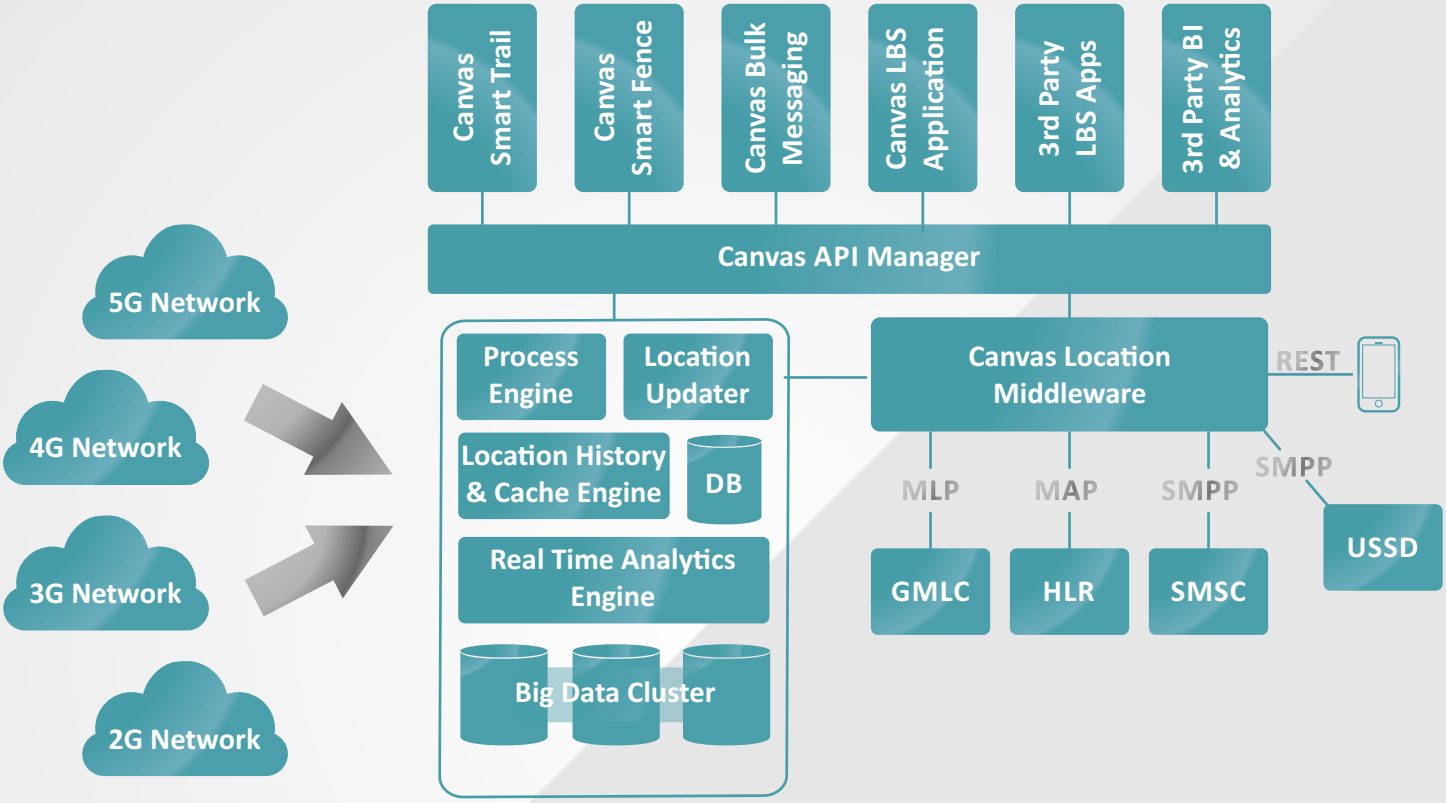
The intelligence behind the Canvas® LAP™ is based on combining both passive and active location detection methods. Active detection method that is also legacy method, is based on query to the network nodes such as GMLC, SMLC, E-SMLC. This method provides high accuracy levels but generates huge amount of network load since the use cases above are meaningful when it is entire subscriber based. Canvas LAP initiates this query through Canvas Location Middleware to any type of CSP Network Node. The second method, that Canvas LAP platform introduces, is passive location detection which is based on monitoring specific nodes of the CSP network to gather the location information of subscribers. Canvas LAP can gather location information of CSP's entire subscriber base by monitoring any network nodes regardless of network type. (2G/3G/4G/5G)

According to legacy location detection method based solutions, Canvas® LAP™ provides higher-efficiency / lower-latency / higher-throughput location info for the entire subscriber base of CSPs.

Feature Summary

- Compliant with ETSI Multi-Access Edge Computing Location API Standards. (MEC013)
- Access to near-real-time location info for the entire subscriber base
- Complementary set of company platforms/products/services (LCMW, ST/PFS, CIS, API-M, BMS)
- Upsell opportunities where related platforms/products/services are readily in use
- Low latency since the support of LTE standards
- Support of seamless integration with any big data platform
- Standard APIs to the Network and the 3rd Parties
- Rich APIs for real-time and historical location information
- Real time geo-fencing capabilities of the subscribers
- Ability to provide JSON/Rest based APIs for easy development with Canvas API Manager, supporting different business methods
- Centralized OA&M features, out-of-the-box reports, troubleshooting
- Modular and scalable architecture with built-in redundancy/high-availability
- Fully virtualized and NFV enabled deployment options
- Support for different deployment models (on-premises, cloud-based, hybrid)

Architecture



Interfaces

- GSM/GPRS/UMTS/CDMA/LTE/IMS
- SS7 TDM (LSL/HSL) and SS7 over IP (SIGTRAN)
- ITU & ANSI MAP
- Diameter
- SMPP, SOAP/XML, REST, MLP
- SNMP

Core Technologies

- Java SE/EE, JDBC, JMX
- Web Services, REST, XML

Operating Environment

- Red Hat Enterprise Linux, CentOS, Oracle Solaris
- Vmware, KVM, XenServer

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