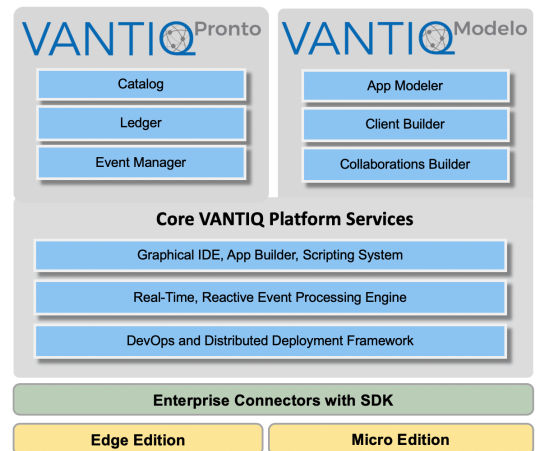# VANTIQ Unique Technical Value Proposition

April 2019

WHY VANTIQ?

The world has changed – your business is experiencing a discontinuity. The old models for software application design are no longer relevant to the new era of real-time business operations. There is now a need to develop entirely new applications that are real-time in nature as the basis of true digital transformation. Most efforts to develop new or transform old applications into real-time have failed since the database centric architecture is not the appropriate architecture for real-time applications. As a result, a significant number of modern, event-driven systems are now being built that sense, analyze, and take immediate action on the events that are occurring in and around your business in real time.

With the VANTIQ platform, you or your software development partners can quickly develop applications that transform the way you operate your business. Applications built with VANTIQ allow you to analyze how events are occurring and changing, in time and space, throughout your business operations in real time. Your people or machines can then take the most appropriate actions for maximum effectiveness. New technologies such as AI, IoT, and Blockchain are easily brought together with your legacy systems by VANTIQ. Applications built by VANTIQ include facility security (using AI and facial recognition technology); field service management (using real-time location tracking); logistics and supply chain management (using IoT sensors and GPS); and many more. Such applications are highly customized to your specific needs and are built with VANTIQ in days or weeks – not the months or years it would normally take. VANTIQ makes your organization's digital transformation quicker and easier.

What makes VANTIQ unique

1. Low-code, Rapid Development of Event-Driven Apps
2. Agile Event-Based Integration Model
3. Edge and Event-Mesh Deployments
4. Effective Human-Machine Collaboration
5. Enables Mission-Critical Systems

VANTIQ Pronto

| Catalog |
| Ledger |
| Event Manager |

VANTIQ Modelo

| App Modeler |
| Client Builder |
| Collaborations Builder |

Core VANTIQ Platform Services

| Graphical IDE, App Builder, Scripting System |
| Real-Time, Reactive Event Processing Engine |
| DevOps and Distributed Deployment Framework |

Enterprise Connectors with SDK

| Edge Edition | Micro Edition |

VANTIQ is the only solution that enables you to rapidly develop and deploy real-time applications by combining low-code development, powerful event-based integration, easy edge deployments, and effective human-machine collaboration, all in a single asynchronous, event-driven, scalable platform. It is an enterprise-ready platform that supports mission-critical applications. The VANTIQ Platform includes Modelo, a low-code application platform-as-a-service (aPaaS); Pronto, an Advanced Event Broker (AEB); Edge & Micro Editions; and an Enterprise Connector SDK that includes numerous pre-build connectors.

KEY DIFFERENTIATORS

The 5 key differentiators that make VANTIQ unique are described in detail below.

1) Low-Code, Rapid Development of Event-Driven Applications

   VANTIQ is the only platform focused on event-driven applications that comprehensively supports high productivity across the software development lifecycle including design, development, testing, deployment and operations. The IDE combines the best of visual editors, scripting editors and a rules system with scripting based on JavaScript and SQL, testing tools for debugging, tracing and logging and a visual tool for distributed deployments. VANTIQ provides all the benefits of an event-based architecture and reactive programming, yet only requires understanding equivalent to JavaScript and SQL making the it simple to learn and use. The tools include:

   - App Modeler – a no-code, graphical tool for gathering requirements, defining and documenting business events and auto-generating applications
   - App Builder – a low-code, graphical tool for creating event-driven applications that capture, transform, and make decisions on streams of events
   - Client Builder – a MVC-based WYSIWYG editor for defining the pages, widgets, data and code which make up a web or mobile client interfaces
   - Collaborations Builder – a low-code, graphical tool simplifying the development of real-time collaborations between users, applications and machines

   VANTIQ Modelo has enabled its customers to build event-driven applications rapidly – at least 10X faster than other approaches.

2) Agile Event-Based Integration Model

   A real-time business is supported by multiple real-time applications and systems. Business systems can be constructed by integrating individual applications to combine their events to create derived events and support more strategic business needs. This is a modern, agile approach to support your evolution into a real-time business. Most enterprises have little or no appetite for slow and expensive strategic development projects. They prefer smaller, tactical, operations-led development projects which can be executed rapidly and show quick time-to-value. VANTIQ provides an environment for constructing such applications very rapidly. However, these applications must eventually be combined into strategic systems if the real-time business value is to be truly realized. Hence, the best approach is a combination of tactical application development with flexible integration to support the strategic needs of the organization.

Although both data integration and event integration are required, event integration has a number of advantages for the real-time business. Events are naturally loosely-coupled, always asynchronous, do not share data and just copy event state (minimal data). The data is published asynchronously. Anyone can subscribe (assuming proper privileges). The subscribers are completely asynchronous and do not depend on the publishing application in any way. If it is eventually replaced by a completely different application, all that must remain true is that the events are published and the data does not change. VANTIQ Pronto provides the ability to easily transform, aggregate, contextualize and analyze the events as they flow through the Pronto event catalog.

A System of Three Applications Sharing a Common Event Catalog
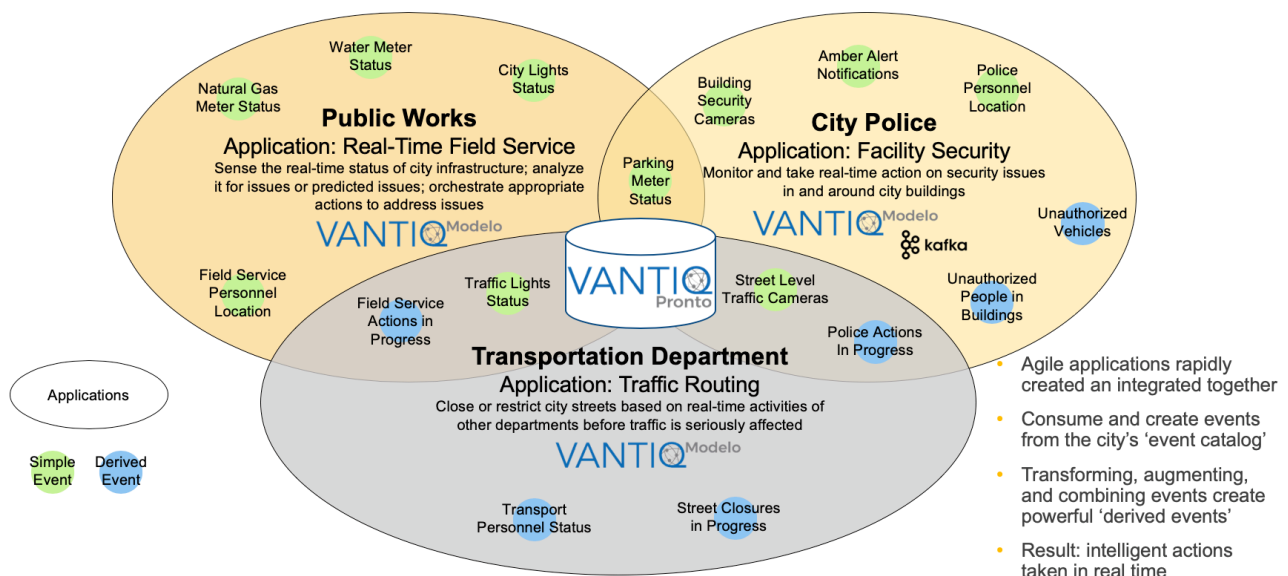
This is the new direction of strategic event-driven applications. **Only VANTIQ champions and supports this approach – to build event-driven applications rapidly and then integrate these into event-driven systems.**

3) Edge and Event-Mesh Deployments

VANTIQ is a distributed platform treating the edge as just another compute node in the distributed environment. Development is unencumbered as any functionality can be allocated to the edge in a dynamic fashion. This makes the edge, along with the cloud and the data center, full participants in the distributed application. Because VANTIQ's distribution capability is so flexible, users may locate data collection, analytics, processing, and collaboration wherever it is optimal for their needs. **VANTIQ is the only event-driven platform that can offer this level of transparency and portability.**

The VANTIQ Edge Edition includes all the application capabilities available in the VANTIQ platform deployed in a cloud environment. Analytic capabilities are available to perform analysis on the locally acquired data with the goal of reporting a much lower volume of data back to the cloud or data center and lower latencies for critical real-time actions. All communication mechanisms are available including events (publish and subscribe) and service invocations.

The VANTIQ Micro Edition provides connectivity to VANTIQ installations for environments that are too small and low powered to support the Edge Edition such as dedicated sensors and legacy set top boxes. It is written in C and can be integrated into nearly any embedded computing environment.

The VANTIQ Pronto Advanced Event Broker (AEB), implements a modern mesh network for delivering events. A traditional broker contains a centralized mediator. The centralized mediator is a single point of failure, can become a scaling bottleneck and limits the opportunities to optimize the efficiency of event delivery. VANTIQ Pronto contains no single point of failure or scaling bottleneck at runtime. Event delivery is optimized through the configuration of consolidators. Local agents, configured dynamically and transparently, hold the augmentations and the routing logic. An agent at the publisher directly communicates the events to the agent at each subscriber, eliminating the need for a centralized mediator. In a truly distributed application, consolidators can be placed in each geographic region to fully optimize cost and performance. The consolidator also handles cases where the publishers and subscribers are not directly connected. In this case the published event is routed through a consolidator that has access to both the publisher's network and the subscriber's network and forwards the published event to the subscriber.

Dynamic Mesh Deployment
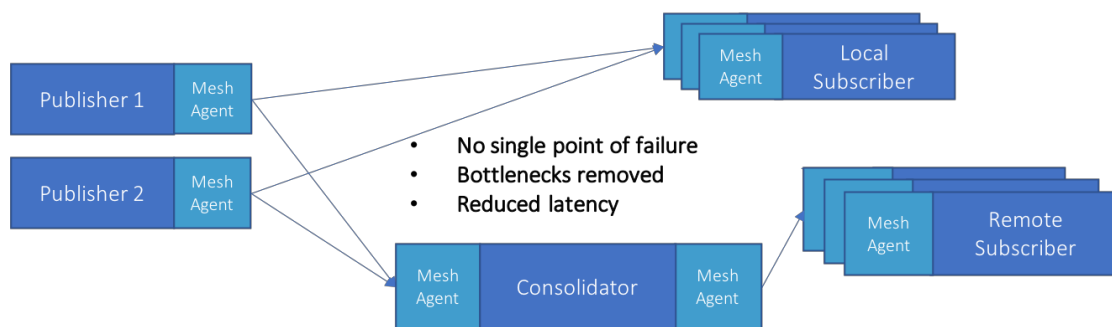
4) Human-Machine Collaboration

Collaboration is required, not just from machines-to-machines but also from people-to-machines and people-to-people. Both machines and people can be independent, working as efficiently as possible and adjusting to each other's requirements in real time. This is very complex to do with current approaches. VANTIQ Modelo makes it easy by including collaboration patterns to support activities like: Assignment, Tracking, Escalation, Conversation, Notification, Publication, Recommendation, Guidance, and more.

For example, a source can easily be built using the built-in connector to chatbots and natural language processing (NLP) systems. A collaboration can then be configured to offer a natural language dialog to the users. When the collaborative application is deployed, the mobile user interface is configured to offer the user the option of starting a natural language dialog that is sent to the server, interpreted and executed. **These types of interactions are quick and easy to build in VANTIQ.**

5) Enable Mission-Critical Systems

VANTIQ provides the security, scalability, and dynamic availability that today's mission critical applications require. Applications built with VANTIQ are inherently secure based on a comprehensive approach including security, integrity and privacy features spanning authentication, authorization, edge device control, and auditability.

Applications built with VANTIQ are microservices-based and are therefore highly dynamic – able to scale to meet ever-expanding requirements and to evolve without having to take the system down. VANTIQ is architected to achieve virtually unlimited scalability and efficiency along all three scalability axes:
- Vertical – exploiting more powerful processors
- Horizontal – exploiting more processors in clustered configurations
- Distributed – exploiting more clusters in a distributed topology

VANTIQ's application platform-as-a-service effortlessly handles scalability so that application owners don't have to.

Summary

The VANTIQ platform automates most of what is required to create modern real-time, event-driven applications and integrate them into strategic system supporting real-time business operations. VANTIQ uniquely addresses the event brokering and low-code software development capabilities required for successful real-time digital transformation.