



VANTIQ Positioning Brief

VANTIQ's Unique Value Proposition

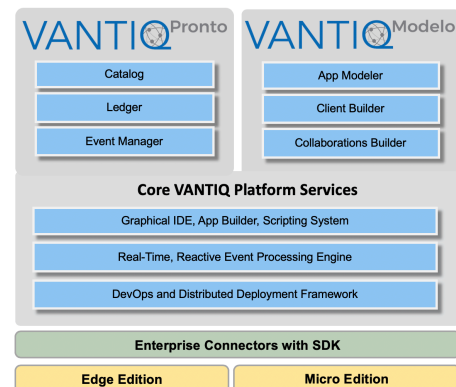
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WHY VANTIQ?

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
2. Edge & Event-Mesh Deployments
3. Effective Human-Machine Collaboration
4. Agile Apps to Event-Based Integration Model
5. Enables Mission-Critical Systems



VANTIQ is the only solution that combines low-code development, edge and event-mesh deployments, human-machine collaboration, and event-based integration, all in a single **asynchronous, event-driven, scalable platform**. 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. VANTIQ provides adapters for a number of commonly used enterprise systems, public data sources and social data sources such as MQTT and AMQP, Email, SMS, Messaging systems such as Slack and Teams, Salesforce.com and Twitter, EAI packages such as Mulesoft and all systems with a REST interface. Enterprise Connector SDK is for building integrations with any external systems including pre-built connectors for: OPC-UA, UDP, JDBC, JMS, Tensorflow (Image recognition), and more.

1) Low-Code, Rapid Development

Modelo includes the VANTIQ IDE, an environment that comprehensively supports the full software development and deployment lifecycle, including design, development, testing, deployment and operations. It does this with components including visual editors, scripting editors, a rules system with a SQL-based system based on JavaScript, testing tools for debugging, tracing and logging and a visual tool for distributed deployment.

While VANTIQ Modelo provides all the benefits of an event-based architecture and reactive programming, it only requires understanding coding at the level of JavaScript and SQL. The tooling supports visual declaration of components and high-level scripting for more complex elements of event-driven applications not suited to visual development. The tools include:

- App Modeler – a no-code, graphical tool for gathering requirements, defining and documenting business events and auto-generating applications.
- App Builder – allows users to capture, transform, and make decisions on streams of events occurring within Modelo with little code.
- Client Builder – a MVC-based WYSIWYG editor for modifying the pages, widgets, data and code which make up a client interface.
- Collaborations Builder – simplifies the development and operation of real-time collaborations between users, applications and machines.

Modelo has enabled its customers to build applications rapidly – often 10X faster than most other approaches.

2) Edge & Event-Mesh Deployments

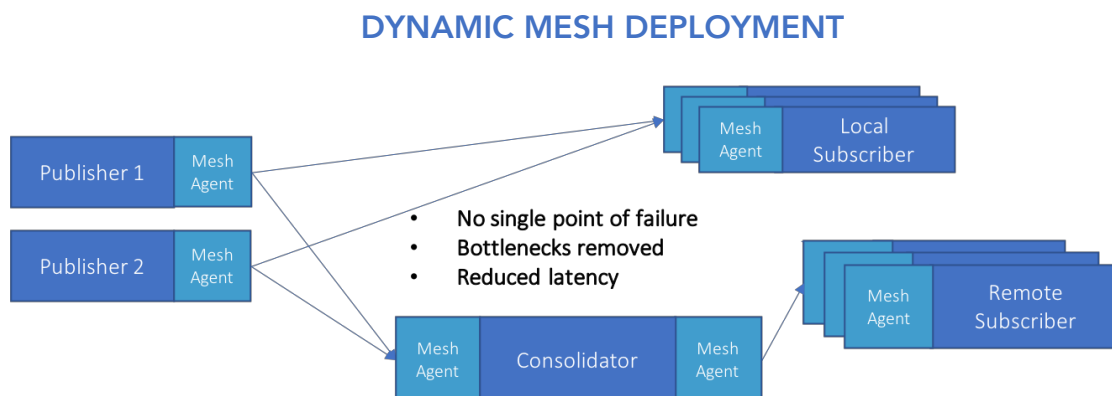
VANTIQ is a distributed platform treating the edge as just another compute node in the distributed environment. Development is unencumbered as any functionality can be allocated to the edge in a dynamic fashion. This makes the edge, along with the cloud and the data center, full participants in the distributed application. **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. All communication mechanisms are available including events (publish and subscribe), service invocations and the Pronto advanced event broker

capabilities. Because VANTIQ distribution capability is so flexible, the user may locate data collection, analytics, processing, collaboration wherever it is optimal for your needs.

The VANTIQ Micro Edition provides connectivity to VANTIQ installations for environments that are too small and low powered to support edge edition. It is written in C and can be integrated into nearly any embedded computing environment.

The VANTIQ Pronto event broker, 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. With Pronto, at runtime there is no single point of failure or scaling bottleneck. 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.



3) 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. Sometimes the User drives and the system reacts and sometimes the System drives and the user reacts. This is very complex to do with current approaches. **VANTIQ Modelo makes it easy by including**

collaboration patterns at a high level of abstraction to support the following activities like: Assignment, Tracking, Escalation, Conversation, Notification, Publication, Recommendation, Guidance, and more.

Big Data analytics and machine learning are specialized tools with which VANTIQ integrates in order to take advantage of insights gleaned from those tools to enhance decision accuracy in VANTIQ's real-time processing. For example, a source can be built using the built-in connector to chatbots and natural language processing (NLP) systems. A collaboration can be configured to offer a natural language dialog to their 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. When the user activates the dialog, the user can then submit natural language questions and commands that are sent to the server, interpreted and executed.

4) Agile Apps to Event-Based Integration

A real-time business is supported by multiple real-time applications and systems. Typically, applications support very specific business needs and operational functions. "Business Systems" can be constructed by integrating the 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. 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 time-to-value. VANTIQ calls these smaller, tactical or functional projects "applications" and provides an environment for constructing such applications very rapidly. However, these applications must 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 strategic planning to integrate the tactical to support the strategic needs of the organization.

Unlike existing enterprise architectures which are top-down IT-policy-driven and bottom-up infrastructure-heavy and thus slow and complex, the new and innovative approach from VANTIQ is agile for operational-technology (OT) and line-of-business needs while enabling strategic "real-time business systems" that can comply with corporate standards. Any real-time business will utilize both user-driven and event-driven applications but, over time, event-driven will become a greater percentage of the application portfolio as the business become increasingly real time.

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 data published is not the data the publisher operates on; it can always be a simplified version that is more stable and designed for outside consumption for less data and control coupling. The subscribers are completely asynchronous and do not depend on the publishing application in any way. If it is replaced by a completely different app all that must remain true is that the events are published and the data does not change

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!”**

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 devices 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

Today’s business and technology challenges are immense and growing. The VANTIQ platform automates most of what is required to create modern real-time, event-driven applications. VANTIQ uniquely addresses the event brokering and low-code software development capabilities required for successful Digital Transformation.