

## ENABLING THE DIGITAL ENTERPRISE

### THE NEED

Every company must innovate with technology. The next generation of real-time and event-driven applications will incorporate modern technologies such as the IoT (Internet of Things), mobile, and AI (artificial Intelligence). They will run in the cloud, on the edge, and in corporate datacenters. These applications will become a company's nervous system as they will connect everything and run everywhere. But, developing and managing these applications with current tools is very difficult and getting more so.

### THE CHANGING TECHNOLOGY LANDSCAPE

Until recently, computer systems primarily automated existing business functions with applications such as HR and Customer Relationship Management providing productivity gains but core business functions remained the same. This is now rapidly changing as real-time event data (from IoT, mobile, social, and services) are now available to drive major innovation.

As new technologies are deployed everywhere, software will need to follow. Data generated at the edge of a network will be analyzed near its source to enable time-critical actions such as addressing a safety issue or shutting down a problematic machine. Smart edge nodes will assure the responsiveness required and prevent overloading networks and clouds.

An important new requirement in digitizing an enterprise is to create intelligent collaborations between computer applications (machines) and humans. In general, software will act when the effects are known and humans will direct or assist when their experience, intuition and ability for abstract thinking is of benefit. This synergism will enable higher levels of operational efficiency and enable new business opportunities.

New *abstractions* are required to deal with these new requirements. Throughout the history of the computer industry, abstractions were created to address increasing complexity. Examples are high-level languages, visual design tools and virtualization. To reduce complexity and enhance agility, the next generation of application development platforms will contain new high-level abstractions.

## ENTER VANTIQ

VANTIQ is a “low-code” software development platform that enables companies to digitize their business by incorporating modern technologies such as the IoT, mobile, and services. VANTIQ is built on a fully modern architecture and supports innovative event-driven, distribution and collaboration technologies.

Applications built with VANTIQ are designed to be mission-critical. Anything can be dynamically changed with zero downtime. Software services can be specified as backup to be automatically deployed if a failure or slowdown occurs. For advanced levels of security, VANTIQ applications are multi-tenant on all nodes.

To enable responsiveness and massive scalability, VANTIQ is built upon a modern *Reactive* architecture. This facilitates the exponential growth of asynchronous events and streaming data—which must be ingested in real-time. This is a requirement as real-time applications become a company’s nervous system. With VANTIQ, Reactive programming is made easy by hiding its inherent complexities.

VANTIQ applications are built independently of the physical deployment environment. Business logic is created without regard to where it will run. After an application is developed, VANTIQ *partitions* the application, or separates it into components which are then

automatically moved to the appropriate nodes. This is done for two or ten thousand nodes. The developers of an application do not have to deal with low-level middleware since VANTIQ automatically incorporates it.

VANTIQ has innovated by creating high level abstractions for system to human collaboration. As an example, if a machine failure is detected, VANTIQ can initiate a collaboration to assign, locate, track, advise, and provide real-time status to a technician performing the repairs and others as deemed necessary. VANTIQ collaborations are truly interactive, like two employees offering each other advice, except, in this case, one is an application.

VANTIQ can be used to create new applications or add to existing applications. This empowers companies to act quickly on high value situations. Examples of adding functionality are: (1) adding collaborations to an existing system for employee-customer interaction in a retail outlet, or (2) monitoring assets in a warehouse as RFID tags are added. Examples of new applications are: (1) a new real-time kiosk system, or (2) a health management application for a hospital.

Applications built with VANTIQ improve developer productivity by at least 10x compared to existing approaches. As important, VANTIQ reduces risk by automating most of the low level technical details of today’s complex environments. VANTIQ creates the real-time, event-driven nervous system for the digital enterprise.