Oracle

Hitachi Consulting
We make it happen. Better.

Solution Overview
Enterprise of Things:
Extending the Enterprise from the Datacenter to Devices

The Enterprise of Things embodies the concept that enterprises' IT infrastructure is no longer limited to datacenters and PCs, but extends to a myriad of connected devices from the plant floor to drilling sites to retail outlets to patient rooms. Given the virtually unlimited manifestations of the Enterprise of Things, companies must dedicate thoughtful consideration to the value and differentiation a device-centric strategy can offer them.

The Enterprise of Things

Traditional enterprise technology architectures have shown a loose, if any, linkage between Information Technology (IT) and Operational Technology (OT). Whereas IT focuses on the creation and processing of information through a variety of computer hardware, software, and communications technologies, OT exercises control over devices and events in the enterprises. The convergence of IT and OT lies at the root of the Enterprise of Things – an organization that leverages embedded technology to execute business processes at the device level and/or creates active, two-way links between devices and information control hubs – the embodiment of a device-to-datacenter strategy.

This IT/OT conversion has been enabled by several trends having reached critical mass in recent years and dramatically expanding in the near future. First, the evolution of embedded technology, most aptly represented by Oracle's Java Embedded technologies, has allowed for formerly "dumb" devices" to be made "smart", creating real Machine-to-Machine (M2M) capability. Second, the proliferation of secure, reliable connectivity for those devices, via wired and wireless, local and wide-area networks, has generated a capacity to both actively manage the devices themselves and also act on the data generated by those devices.

Beecham Research estimates that by 2020, more than 50 billion devices will be connected to the Internet – giving rise to the Internet of Things (IoT). Many of those devices are owned by enterprises, introducing the imperative for enterprises to consider translating this network of devices into a business advantage. In fact, the opportunity for those enterprises could be staggering, as Cisco Systems estimates that more than $14 trillion in new profits will be derived from the Internet of Things. Whether it is a medical device company remotely monitoring implants' performance, utilities employing smart meters, or retailers acting on people counting data, harnessing the IoT allows enterprises to significantly change how they conduct business and which services and products they can offer their customers.

But getting there requires a proven platform of technologies, engineered to work together. Oracle delivers just that by way of Oracle's Internet of Things platform. Oracle's IoT platform redefines "end-to-end" by extending one of those ends to the device layer through an integrated data stream, employing Embedded Java, Database, Middleware, and Business Intelligence solutions.

IoT in Motion – Driving Business Value from Edge Device to Application

Far from science fiction, the vision of the Enterprise of Things can be made reality today. To prove the concept, Hitachi Consulting teamed with Hitachi Communication Technologies America (Hitachi CTA), Oracle, and device innovator Eurotech to deliver a conference attendee People Counter solution: IoT in Motion.

Co-architected and built by Hitachi Consulting, IoT in Motion integrates a variety of sophisticated technologies with highly experienced consulting know-how to illuminate the dramatic power of the IoT and how businesses can extract value from device-generated data:

- **Oracle's Internet of Things platform:** a suite of technologies, including Oracle Java SE Embedded, Oracle Database, Oracle Event Processing, Oracle Business Intelligence Foundation Suite, running on Oracle Exalytics, and JavaFX.
- **HCTA SuperJ® Applications Ecosystem:** a middleware platform that complements Java SE Embedded, supporting application development and lifecycle management, interface abstraction and allowing upgrade without impact on active operation.

ORACLE Diamond Partner

- **Eurotech DynaPCN People Counters:** sophisticated sensor technology, Eurotech ReliaGATE gateways with device-based application framework, Everyware Software Framework running Oracle Java SE Embedded and built on the Hitachi CTA SuperJ® platform, integrated to the Eurotech Everyware Cloud.

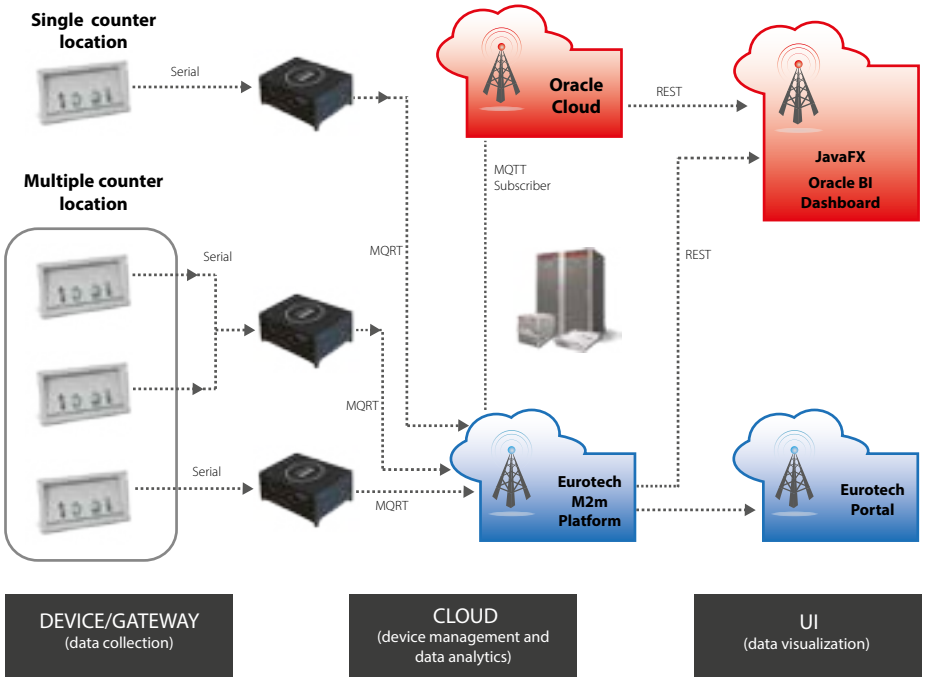
Benefits

IoT in Motion carries the potential for any number of conceivable real-world implementations. The original proof of concept was built with Trade Show scenarios at its core, creating value for event organizers (e.g., capacity management, staffing plans, code compliance, etc.), attendees (e.g., schedule management, logistics), as well as exhibitors (e.g., materials management, scheduling, special promotions, etc.) – improving overall event success and return on investment (ROI) for all involved.

But IoT in Motion could also be used in public transportation (vehicles, hubs), large public venues (stadiums, entertainment centers), and retail outlets (malls, storefronts) to achieve goals as diverse as safety management and proximity marketing.

Hitachi Consulting can work with clients to evaluate the business value of implementing IoT in Motion in their own context, from ideation to ROI modeling, from design to implementation, and from hosting to solution management.

"Every industry will contain Enterprises of Things. The only question is who takes the lead in capitalizing now on the value intrinsic to M2M technology."



Why Hitachi Consulting

Hitachi Consulting, an Oracle Diamond Partner, has dedicated a practice to help clients create and extract value from an Enterprise of Things strategy. Leveraging decades of experience with Oracle technology, Hitachi consultants work collaboratively with clients to develop pragmatic applications of Java-enabled M2M connectivity. These pioneering architectures make extensive use of core Oracle technology, applications, and business intelligence dashboards to execute far-ranging business processes.

Hitachi Consulting's uniqueness lies in its ability to leverage partnerships with other innovative Hitachi, Ltd. companies, such as Hitachi CTA – combining consulting expertise with Hitachi CTA's SuperJ® Engine Framework. Numerous other Hitachi, Ltd. companies may contribute technology and know-how as well to an Enterprise of Things engagement.

Together, the Hitachi Enterprise of Things approach delivers secure, reliable, and innovative device networks that result in instant ROI through streamlined operations, more responsive go-to-market strategies, and differentiated, customer-centric offerings.

To learn more about the Enterprise of Things and to schedule a review of the potential this concept can offer your business, contact:

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Hitachi Consulting is the business consulting capability of Hitachi, Ltd., a global technology leader and a catalyst of societal change. In that same spirit-and building on its technology heritage-Hitachi Consulting is a catalyst of positive business change, propelling companies ahead by enabling superior operational performance. Working within their existing processes and focusing on targeted functional challenges, we help our clients respond to dynamic global change with insight and agility. Our unique approach-'strategic pragmatism'- produces consistent, measurable business results and delivers an exceptional consulting experience.

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