



# MindTree Presentation

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## Our M2M Solution Delivery Framework

Jan'12



- The MindTree Brand
- Our M2M Capabilities
- “Device+” Strategy
- Creating M2M-enabled Devices
- End-to-End Service Delivery Framework for M2M
- Success Stories



## Our Growth

FY 2011: \$330M, 12 Straight Years of Growth

## Our Global Presence

23 Offices. Revenue%: 58.4% U.S. / 25.7 % Europe / 15.9 % ROW

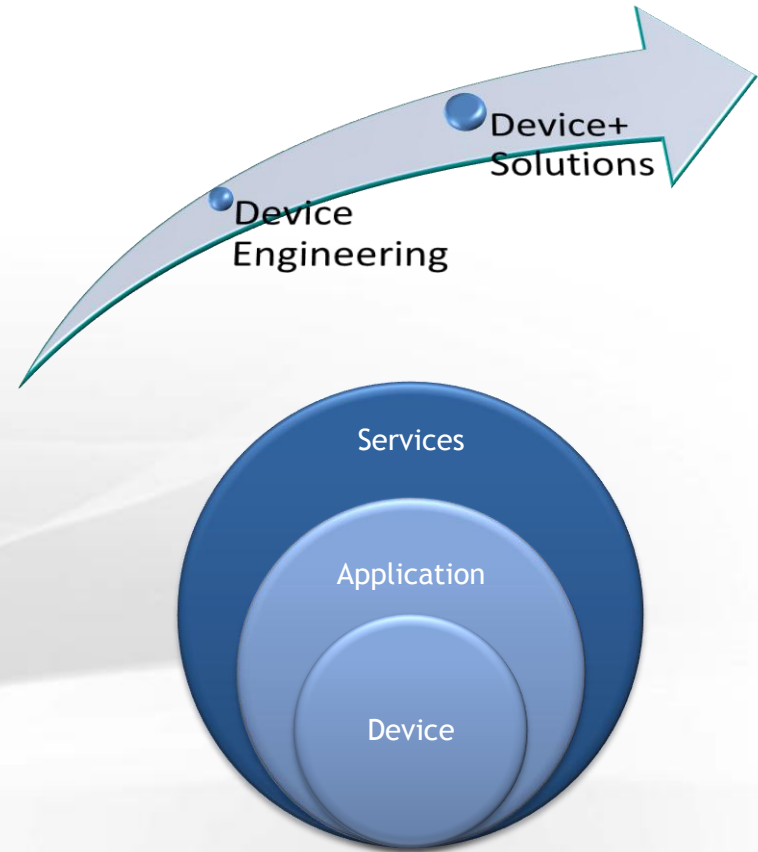
## Our Customers

270 Active Customers, including 43 Fortune 500 Companies

## Our People

10,500 MindTree Minds. High Satisfaction

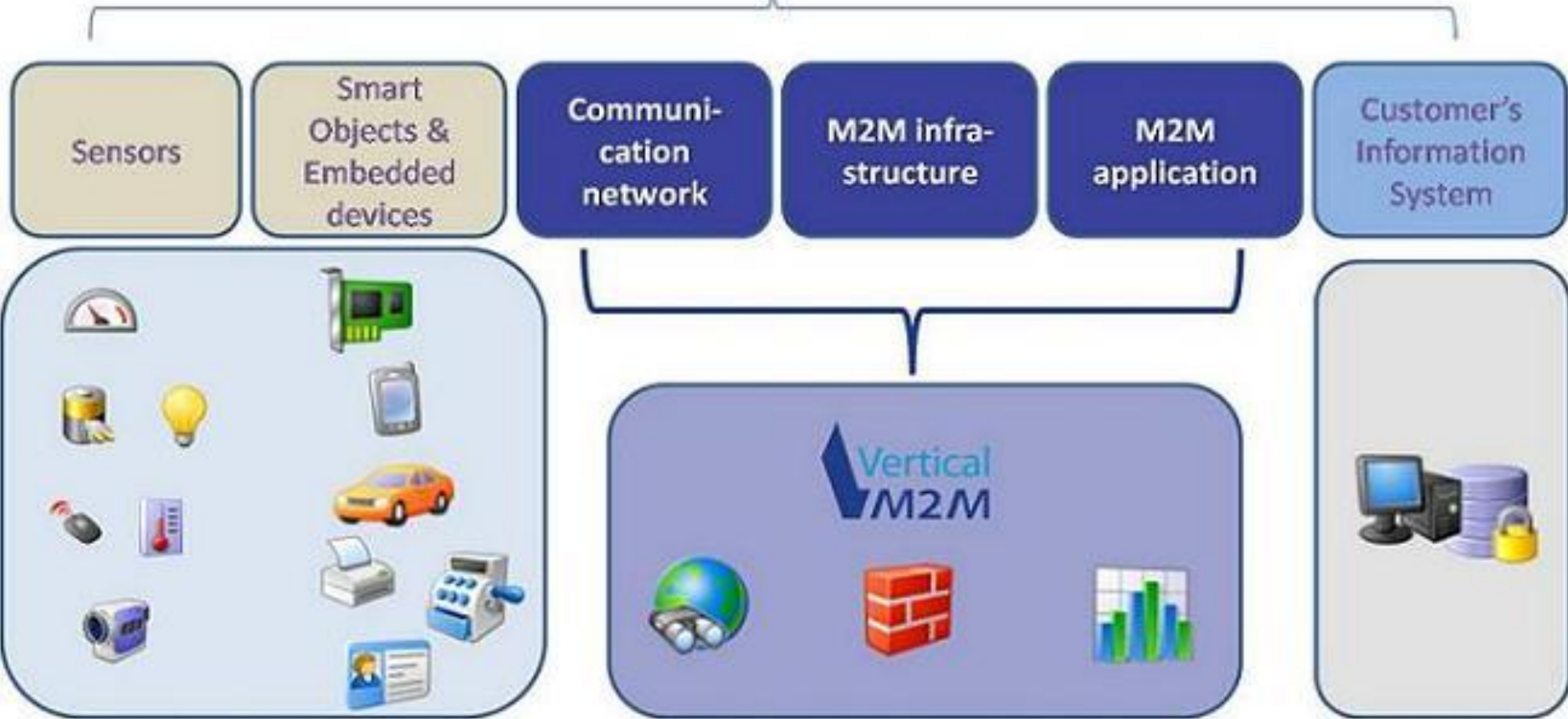
# M2M - Our Focus Segments



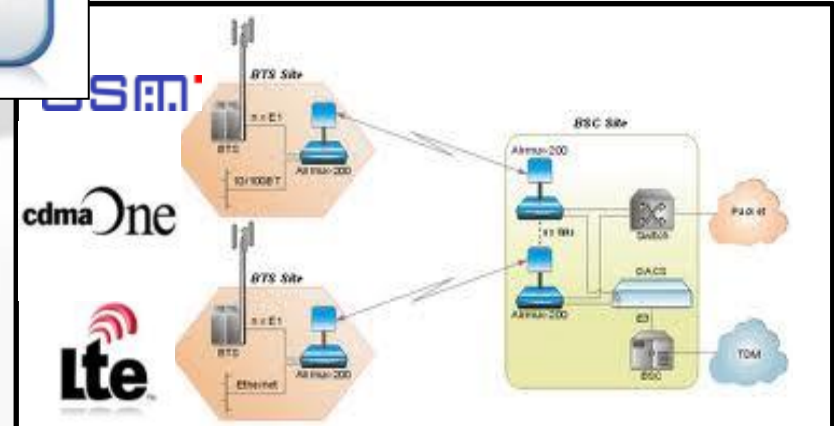
Our **Device+** strategy helps customers to navigate disruption cycles using our **End-to-End** services



## M2M value chain



# Connectivity Expertise





- Clear understanding of Multi-mode GPS for autonomous and aGPS modes
- Well-versed with the various concepts and technologies involved
  - Geo-Fencing, Geo-Tagging
  - Store-n-Forward
  - Bread Crumbing
  - Snap-to-Map
  - NMEA standards
- Proven credentials in creating products used in tracking & tracing applications
- Extensive expertise with several kinds of sensors (accelerometers, gyros, mercury switches and so on) for aiding and improving system performance



## Device Engineering

- Customer Product Development
- Firmware and Application S/W
- System Integration and Validation
- Cost Reduction & Value Engineering
- Prototyping
- Volume Manufacturing Support
- Reliability Engineering

### M2M-enabled Products Engineered by MindTree



600+ Embedded Engineers  
35+ Full product Designs  
350+ Sub-System Designs





## Carrier Customization & Product Commercialization

- Carrier-specific detailed user requirement specs, wireframes, interaction flows, and design specs
- End-to-end software delivery for major Tier 2 Carriers including rapid customizations for each carrier, and development for carrier specific features
- Certification testing services and support lab testing at carrier labs and user trials





## Antenna Design and Testing

- Expertise in designing antennas for standards such as CDMA, WCDMA, GPS, ZigBee, WiMAX, LTE etc.
- In-house facilities for antenna testing
  - Gain measurement
  - Radiation pattern measurement
  - TRP/TIS measurement
  - SAR test antenna tuning...
- Designed a GSM/DCS/PCS/CDMA Quad band FPC Antenna for a multi-antenna products





## Device Testing & Certification



- End-to-end Testing services for Handsets and M2M Devices
- Profound experience in understanding tools and test setups across CDMA, EVDO, GSM, 3G, LTE, Wi-Fi, and GPS Technologies
- Strong expertise in Pre-Certification testing for Carriers and Usability Certification of Mobile Applications
- Fully equipped lab infrastructure for CDMA, WCDMA, and GSM development & testing



## Our Service Delivery Framework

Note: Click on the hyperlinks for more details



[Cloud-Hosted Applications](#)

[Analytics and Intelligence Generation](#)



[Professional Agile Support](#)

[Mobility Solutions](#)



Our Solution Accelerators

RUBIC™

App Factory

MiBiz

SALES<sup>M</sup>MART

mKonn<sup>e</sup>ct

Test Labs

MWatch

ATF




MindTree M2M Solution Delivery Framework

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# SUCCESS STORIES



Customer	Case Study	Our Scope of Work	Business Impact
<b>UK-based Personal Security Device OEM</b>	Development of a Security Device that helps people in insecure environments	We developed a personal security device which uses GPS to remotely monitor, track and support people working in danger-prone work environments. End-to-end design and development was done by MindTree	<ul style="list-style-type: none"><li>• Small form-factor design by MindTree helped the usability of the tracking device</li><li>• Highly optimized design which enabled extended battery life for the products</li></ul> 



Customer	Case Study	Our Scope of Work	Business Impact
<p><b>Leading US Automotive Diagnostics OEM</b></p>	<p>Onboard Tracking and Diagnostics Unit for Commercial Vehicles</p>	<p>End-to-end development of a low-cost Vehicle Tracking and Remote Diagnostic solution.</p> <p>The scope of work included design and development of complete system including M2M modules, and server-side software for data collection and monitoring.</p>	<ul style="list-style-type: none"> <li>• Very successful product for the customer – developed by MindTree in record time</li> <li>• Highly configurable architecture, which enabled the customer to move to new versions with lesser investments</li> </ul> <div data-bbox="1348 888 1819 1145" data-label="Image"> </div>



Customer	Case Study	Our Scope of Work	Business Impact
<b>Leading Beverage Vendor based in US</b>	Remote Management Solution for Vending Machines	<p>We developed the complete system for networking a Vending Machine.</p> <p>This included the hardware and software components needed to interconnect the vending machine to a server, M2M connectivity to enable orders being placed via a cell phone or PDA and integration with backend software.</p>	<ul style="list-style-type: none"><li>• Significant reduction in capital and operational costs for the customer, using our solution</li><li>• Excellent feedback from the users of the vending machine – increased sales for the customer</li></ul>





Customer	Case Study	Our Scope of Work	Business Impact
<b>European Customer in Medical Diagnostic Equipments</b>	M2M Solution for Insulin Pump used in Patient Care	We developed a smart phone based remote control solution for insulin pump used in personal health care Multiple Features were supported such as insulin infusion, glucose level monitoring, meal calculation, event logging and alarm monitoring and user authentication	<ul style="list-style-type: none"><li>• UI-rich solution, which helped to enhance the usability so that users could very easily configure the insulin pump remotely</li><li>• The solution was successfully demonstrated in multiple trade shows and helped to increase the visibility and sales for this customer</li></ul>




Customer	Case Study	Our Scope of Work	Business Impact
<b>US-based Leader in HVAC space</b>	Network- enablement of Air Conditioners	We developed the embedded software and web server for remotely configuring HVAC systems for residential applications. The module provides M2M connectivity through Ethernet or wireless connectivity, making the system accessible over internet connection (on HTTPS over TCP) over secure channel.	<ul style="list-style-type: none"><li>• Significant reduction in capital and operational costs for the customer using our solution</li><li>• Enhanced user experience, resulting in increased sales for the customer</li><li>• Solution could be retrofitted to older HVAC systems, which increased the market potential for the customer</li></ul>




Customer	Case Study	Our Scope of Work	Business Impact
<p><b>US-based Leading Vendor of T&amp;D Equipments in Energy space</b></p>	<p>Transformer Monitoring &amp; Diagnostics Solution for Smart Grid</p>	<p>We developed the M2M connectivity modules required for interfacing transmission-class transformers with the Smart Grid. These modules are used to transmit several performance parameters collected from the transformed back to the sub-station and enable in Grid Optimization</p>	<ul style="list-style-type: none"> <li>• Significant operational cost savings for the end customer as the system could give real-time performance parameters for monitoring</li> <li>• Built-in analytical models and predictive algorithms to enable fault prevention in the transformer equipments</li> </ul>




Customer	Case Study	Our Scope of Work	Business Impact
<p><b>Leading Japanese Customer in Energy domain</b></p>	<p>Back-end meter data management application and integration with smart meters</p>	<p>We developed the backend applications for remotely capturing and managing the data from residential smart meters, providing live information and monitoring of consumption vs supply. We also supported the customer to integrate the system with meter installations during their pilot programs</p>	<ul style="list-style-type: none"> <li>• User-friendly MDMS system which enables the end-user to view live data regarding energy consumption in a graphical manner</li> <li>• Location-based meter identification, information display and control</li> </ul> 




Customer	Case Study	Our Scope of Work	Business Impact
<b>European Leader in Solar Inverters</b>	Solar Inverter monitoring device and mobile applications for remote management	We developed an Android-based wireless device for accessing and monitoring solar inverters	<ul style="list-style-type: none"><li>• All-in-one low-cost device, which can remotely monitor and configure solar inverters in a large building</li><li>• The device could also connect to various external sources and collect and display multiple information such as weather forecasts, news feeds etc. which are used by the intelligent agent to make decisions regarding the inverter configuration</li></ul> 




Customer	Case Study	Our Scope of Work	Business Impact
<p><b>Leading US-based Semicon Vendor</b></p>	<p>Wireless-enabled Lighting Control Solution</p>	<p>We developed a short-range wireless based lighting control system and Android-based application which can be used to control the lights remotely</p>	<ul style="list-style-type: none"> <li>• Low-cost remote lighting controller, which uses the latest chipset from the customer</li> <li>• The proof-of-concept was developed by MindTree at a very short time frame</li> <li>• Demonstrated at prestigious events like Google I/O Conference which helped to generate extensive visibility for the customer</li> </ul> 



Customer	Case Study	Our Scope of Work	Business Impact
<p><b>Government of India's Unique ID Program</b></p>	<p>Wireless-enabled Retail PoS Terminal</p>	<p>This project is done as part of Government of India's UIADI program (Aadhaar) which is intended to create unique ID's for all citizens. As part of this program, we have developed wireless-enabled terminals which can be used for user authentication at PoS.</p>	<ul style="list-style-type: none"> <li>• Small form-factor, low-cost PoS terminals to suite Indian conditions</li> <li>• Multiple ways of remote connectivity including GSM/GPRS/3G</li> <li>• Easily customizable and ready-to-manufacture design</li> </ul> 



Customer	Case Study	Our Scope of Work	Business Impact
<p><b>Japanese Client in Mobile Device space</b></p>	<p>NFC-based E-Wallet System</p>	<p>We developed an NFC-based E-Wallet system for our customer. The work included integrating NFC stack onto the existing platform, developing the software for biometric identification as well as payment applications</p>	<ul style="list-style-type: none"> <li>● Highly successful solution and could be used to buy anything from vending machine products to movie tickets</li> <li>● Multiple levels of security (including biometrics) incorporated into the solution for enhanced security</li> </ul> 





Customer	Case Study	Our Scope of Work	Business Impact
<p>US-based Customer in E-Commerce space</p>	<p>Mobile Payment Platform</p>	<p>We carried out the product definition and backend business logic definition for creation of a secure mobile payments platform.</p> <p>Development of the Mobile payment client</p> <p>Architecture of the Mobile payment system and integration with other players</p> <p>Interfacing with Vendors and aggregators for technical and operational aspects</p>	<ul style="list-style-type: none"> <li>● Complete solution developed supporting several useful features such as:                             <ul style="list-style-type: none"> <li>● Bank information on transaction</li> <li>● Transfers</li> <li>● Bill payments</li> <li>● Top up</li> <li>● Security using IVR/Two factor Auth</li> </ul> </li> <li>● Application developed on many different platforms such as Windows Mobile and BREW</li> </ul>



Customer	Case Study	Our Scope of Work	Business Impact
<p><b>The Indian Subsidiary of a Leading FMCG Customer</b></p>	<p>Device Management System for Android devices</p>	<p>We developed an M2M solution for Device Management including security modules for Android devices.</p> <p>The solution had 3 components - a device Management web server, a security application on the devices and security feature to protect data of existing application belonging to the customer.</p> <p>Through this solution, admin will be able to view all the devices, view their status, lock any device, unlock or wipe data on the device. The device Management server is connected to a SMS gateway through which SMS will be sent to the device.</p>	<ul style="list-style-type: none"> <li>• Enabled the customer to secure the data being shared with their field force by providing them options to remotely manage and configure the Android devices which were supplied to their field engineers</li> <li>• The solution was completely integrated with the customer's backend infrastructure</li> <li>• Solution was developed, tested and installed in record time</li> </ul>



Customer	Case Study	Our Scope of Work	Business Impact
<p><b>Leading European Customer in the field of Navigation Devices and Location-based Services</b></p>	<p>Developing several value added services and applications over their service delivery platforms and frameworks</p>	<p>Testing of the navigation devices, development of mobile applications using GPS for navigation and tracking</p>	<ul style="list-style-type: none"> <li>• We have become the trusted partner for this customer in a short time, due to our delivery excellence and ability to react to their requirements</li> <li>• The team size has grown over a period of 18 months to close to 200 engineers working on their various devices and applications</li> <li>• Supporting the customer in several of their mission critical applications and services</li> </ul>
		<p>Development, maintenance and testing of backend applications related to eCommerce (eg: sale of devices, maps etc.)</p>	
		<p>Development of value added services on top of core products like content maps, navigation etc.</p>	
		<p>Remote NOC operations and backend application management for technical support</p>	
		<p>Data analytics on the huge data collected by this customer, to identify traffic patterns, congestion correlation etc. - Data Monetization</p>	
		<p>Building tools for streaming real time HD Traffic and Road Safety data</p>	



<b>Customer</b>	<b>Case Study</b>	<b>Our Scope of Work</b>	<b>Business Impact</b>
<b>Chinese Giant in the Telecom Infra structure space</b>	Developing solutions to enable Mobile Virtual Network Services	We developed mobile virtual network services for GSM/CDMA networks which enabled the carrier to: <ul style="list-style-type: none"><li>•Combine different subscribers into various groups</li><li>•Provisioning the service</li><li>•Use different charging rates and right control policies for calls within the group, between groups, with non-members etc.</li><li>•Enable the members of the group to communicate easily by using short numbers</li></ul>	<ul style="list-style-type: none"><li>• Created a platform for the carrier, using which MVNO services could be enabled for various purposes like location based tracking</li><li>• Successfully completed roll-out of the feature in several key carrier networks and provided 24X7 active support</li></ul>



**Our Mission**

**Successful Customers**

**Happy People**

**Innovative Solutions**

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