Connectivity and Lifecycle Automation Solutions for the Internet of Things

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CEOCFO: *Mr. Garcia-Meza, would you tell us the concept behind CloudPlugs?*
Mr. Garcia-Meza: CloudPlugs is a software company that focuses on providing end to end solutions for connectivity and lifecycle automation for the Internet of Things. The CloudPlugs platform enables organizations to connect any kind of device: new generation low power and smart devices as well as legacy devices. It allows all these types of devices to communicate with each other transparently regardless of their technology or their native communication protocol. This means that you can have a wearable device communicate with a car, with a light bulb, with a whole home, or with industrial equipment. Connectivity and communications is just the first step. We make devices smart with our SmartPlug™ IoT agent which allows the development, deployment, configuration and management of applications for the devices. We make the network smart with our highly efficient PlugNet™ protocol, and we provide full cloud based lifecycle automation for Internet of Things devices and applications. Organizations can prototype, deploy, manage and configure tens of thousands of devices from the cloud. Organizations can develop, deploy and update their device applications from the cloud with one click. A geo-location engine allows the handling and tracking of mobile devices, and a rules based engine allows the creation of triggers and alarms based on event data produced by the devices. The event-driven nature of our cloud service means highly efficient network and server utilization for our service and for those customers that deploy our platform on-premise. CloudPlugs also has a integration layer with API's that allow us to integrate with our customer's business and operations support systems which they can use for analytics, decision support, trouble ticketing, etc.

Our platform is architected to enable the convergence of traditional Information Technology (IT) and Operational Technology (OT) to drive new levels of efficiency across the enterprise.

CEOCFO: *What pieces were the most challenging to put together?*
Mr. Garcia-Meza: Some of the more complex elements are related to providing secure, transparent and very efficient connectivity among devices and between devices and the cloud. We invest a lot of time studying the features of every type of device and the special parameters that they use. We then add support for those capabilities to the platform which from that point on acts as a polyglot translator that allows completely dissimilar devices to communicate transparently with each other. An analogy would be a service that allows a person to travel all over the world speaking English, getting responses in any language and understanding them as if they were delivered in English. It is one of the more complex and ever evolving elements of the platform. We have to do this because there are no set standards in the industry and companies make products with specific protocols for different applications. Another very challenging and important element is ensuring end to end security by making sure that our SmartPlug IoT agent is able to withstand hacking attacks. We invest a lot of R&D time on building a highly secure infrastructure for the devices, for the network and for the backend cloud service. Lastly, because we sell to large enterprises, all our software, device, network and cloud side has to be robust, reliable, secure and scalable to handle millions of devices operating simultaneously and that is no easy task.

CEOCFO: *What is it you are able to build into the system to integrate with anything anywhere?*
Mr. Garcia-Meza: At the core of the platform is a highly scalable, reliable and secure message bus that devices use to communicate with each other. Devices communicate through channels publishing and subscribing to data. The bus takes care of the protocol translations and allows seamless device communications through the cloud. On the device side, many customers need develop gateways that can manage multiple sensors and devices. An example would be a home gateway

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that manages security cameras, garage doors, lighting, heating, entertainment, etc. Today, many of those devices speak their own individual protocols and it is not easy to make them talk to each other. Powering these gateways with our SmartPlug™ IoT agent allows the development of applications that make the interaction between dissimilar devices seamless. We can allow a Bluetooth device to talk to a Wifi device, to a z-wave device, etc. completely transparently. The SmartPlug™ is based on a custom, highly secure version of Node.js technology. This allows organizations to develop applications extremely fast in a high-level language like JavaScript to be able to handle all kinds of device connectivity and control requirements. With an ecosystem of over 146,000 open-source modules that run on Node.js and that are supported by our agent, customers have access to a lot of innovation and code they can re-use for free to integrate all kinds of devices very quickly. As more and more people realize the value of node.js for IoT and contribute with open products, every one will benefit. We have built a platform that is highly extensible and that allows customers and developers to innovate on their own devices and integrate them themselves without having to depend on our resources.

> **"A world of connected devices will enable a new class of benefits that no one will be able to ignore. But to reap the benefits of the Internet of Things, companies will need to add secure connectivity, and end-to-end automation and intelligence into their infrastructures."- Jimmy Garcia-Meza**

CEOCFO: *What types of organizations come to you?*
Mr. Garcia-Meza: In the early days of the company, our first customers were telecom companies. Telecom service providers want to improve their revenue streams by offering new services. Today, many companies offer Internet service, e-mail service and some offer data storage and backup services. Most of the Telco companies we talk to want to start offering Home Automation services through IoT gateways that enable the control of any device in the home from anywhere. To deliver these new services, they need to upgrade the hardware that goes into the home and they need the service and automation platform to enables them to develop, deploy and manage the devices remotely and to develop the web/mobile control applications that the home user will need to control and program the devices. Since we offer a full platform including the SmartPlug™ which makes the IoT home gateways really smart, customers like the fact that they can get all the key pieces form one vendor while still having the freedom to add their own value to the service. We also work closely with appliance and industrial manufacturers interested in creating a new generation of smart products that can be controlled from anywhere and that can be offered as a service. Many traditional manufacturers want to transform their business and rather than making a one time sale of a product, they want recurring revenues from a service. To offer a product as a service they need a software stack and a platform. Most of these HVAC, heat pump, industrial fans, refrigeration, etc. manufacturers have no software skills and therefore need a company like CloudPlugs and a systems integrator to help build their new generation products and services. One of our focus areas is to make the Industrial Internet of Things (IIoT) a reality. In addition to working with manufacturing companies, we work with companies that want to provide IIoT gateways and need the agent for the gateways and the cloud service. In addition to the SmartPlug™, we provide a series of IIoT gateway products designed to bridge legacy industrial and commercial technology with the Internet of Things. This allows us to get into Smart City projects for flood and water management, into utilities companies trying to making their grids smarter, financial institutions trying to manage energy across their branches more efficiently, etc. BY virtue of being a horizontal platform, organizations use us to solve all kinds of problems.

CEOCFO: *Do think it is just a matter of time before everyone will be onboard with the fact that they need a service like CloudPlugs?*
Mr. Garcia-Meza: Certainly, because the Internet of Things is going to touch every industry. We mentioned telecom service providers, industrial manufacturers, facilities management and utilities, but it is also going to touch transportation, retail, healthcare and smart cities. To build a connected world that is going to allow seamless device interaction, and simple device-human interaction, an end-to-end lifecycle automation platform like CloudPlugs will be a core component of the service infrastructure.

CEOCFO: *How do you reach out to potential customers?*
Mr. Garcia-Meza: The world is becoming more knowledgeable about the Internet of Things and we get requests from people that find us on the web, but we have a strong outreach program to enterprises in our target market segments through direct sales, systems integrators and partners. We are building our partner ecosystem to include not only resellers but large computer companies, software companies and System on chip providers that want to offer a new class of service to their customer base. We also participate in conferences that give us broad exposure to the early adopters of the Internet of Things.

CEOCFO: *You are in a crowded field. Do your potential customers understand the depth of your offering?*
Mr. Garcia-Meza: Everyday you will see a new company claiming they have an Internet of Things platform. What we have seen is about 95% of these companies focus on providing a little point solution. They will give you a message broker bus that may handle a couple of protocols, but they have not taken the holistic approach that we have. This creates a lot of confusion and noise in the market. This is why for the time being many of the people interested in the Internet of Things have been mainly enthusiasts who have taken a little platform and made a few connectivity tests, but have not had the tools to create the production quality product that they can deploy, manage and update in the millions. By us focusing on not just connectivity but on an end-to-end lifecycle automation solutions, we can demonstrate real advantages when trying to create a serious service or product that will be deployed in the tens of thousands in homes, buildings and remote locations. In the end we are selling technology and the technology architecture, capabilities, scalability, robustness, reliability, extensibility and security matter. We make sure customers really understand what it takes to create a connected product or service. All the large companies we talk to have seen multiple platforms and the feedback we get is that we have the most advanced IoT platform in the market today. For companies and people that are serious about the Internet of Things CloudPlugs offers a one-stop, best of breed solution. This is why some of the largest computer companies in the world are partnering with us to deliver their first IoT projects.

CEOCFO: *What is involved in an implementation?*
Mr. Garcia-Meza: We first need first to understand what the service or product is about and what we are trying to connect. If it is a single device like an industrial product, we assess with customer the optimal technology for connectivity based on the capabilities of the device. If it is a device that can run an operating system, we use a SmartPlug™. If it is a low power device, we choose a connectivity library like MQTT, or if the product uses legacy protocols, we use our IIoT Modbus software. If the device will be a gateway, like a home automation gateway, we define what kinds of products the gateway will manage, and we develop a plan to integrate the target devices into the SmartPlug™. We then define the type of control application that will be used to control the devices, both from a user stand point as well as from a central service standpoint. Once all the features for the device side application, the control application and the connectivity requirements are set, we create a project plan and define the teams responsible for the development of the various components. We typically help the customers with the initial development, or we train their personnel if they have internal development capabilities, or introduce a systems integrator partner. Depending on the complexity of the solution, we typically show the device fully connected to the platform in a few days and then the application development times vary depending on the feature set to be implemented for the first prototype. After a typical 45-60 day development period, the proof of concept or prototype is finished and ready for final approval. Some customers like to perform large-scale benchmarks to test the platform's scalability and robustness and that can be a 2 to 3 week process. Then there is the final product or service development, testing and quality assurance and that can be an additional 3 to 5 month process. In this time frame, the customer also becomes fully familiar with all the platform features, especially if they want to deploy it on premise. This period is also used by the customer's product teams to get all their product readiness materials in place for the final launch. It is a similar process to the one companies use to create new products, except that the application development periods are significantly reduced to deliver more powerful features, and the engineering and marketing teams imaginations are the limits of what they can do with their IoT enabled products or services. For telecom operators we follow their process to add a new service suite. For many industrial manufacturers this can be a project of business transformation, which may involve the entire company. As the market evolves and we create a marketplace of SmartPlug™ IoT applications, customers will be able to re-use modules that are production ready and that will further reduce development and implementation times.

CEOCFO: *When you are assessing a project, what might you look at that others do not realize is important?*
Mr. Garcia-Meza: When we look at a project, we try to take a holistic approach and work with customers to help them understand what it takes to engage in a production ready Internet of Things project. Some IoT platform companies say, "We can connect your product in five minutes". That is just marketing fluff. If the customer happens to have the exact same product that has been previously connected, it is easy to connect. However, most devices are different and customers have their own specific needs and applications which require some integration and/or customization work. When we talk to a customer, we tell them what are the capabilities that our technology will bring to their business and we outline the various steps required to arrive to their goal. We have a consultative sales approach and many of the IoT startups that you see out there are companies that do not have the level of sales experience and technical depth to work to handle the requirements of enterprises interested in the Internet of Things. For us it is very important to be able to help our prospects understand what IoT means for the their business and that they really buy into the program and the process. That is why some of the sales cycles are long today.

CEOCFO: *Why pay attention to CloudPlugs?*

Mr. Garcia-Meza: The Internet of Things is going to be a huge market that will bring lots of opportunities for companies to control and better manage their remote assets, create digital supply chains that will result in efficiency gains, lower operational costs and that will enable the creation of better customer experiences. We saw many of these benefits when computers started getting connected in the late 80's and 90's. A world of connected devices will enable a new class of benefits that no one will be able to ignore. But to reap the benefits of the Internet of Things, companies will need to add secure connectivity, and end-to-end automation and intelligence into their infrastructures. Having a one stop, end-to-end lifecycle automation platform that is scalable, secure, reliable and feature rich allows organizations to focus on their value add and their business and not have to worry about the infrastructure required for their smart product or service. CloudPlugs is the only company in the market today that offers the best of breed, end to end IoT automation platform at much lower costs than 1st generation cloud based technologies. Customers, partners and investors will find that CloudPlugs is at the forefront of IoT innovation and that its products, services and approach to market are designed to help businesses to design, deploy and manage successful IoT deployments in record time.

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