AUTOMATED DATA COLLECTION

Alchemy solutions

APRIL 2021

Our IIoT and 5G Knowledge

Alchemy Solutions is a future focused, innovative professional services firm that creates sustained IIoT and 5G change for our corporate, government and small to medium enterprise customers.

We're certified experts in IIoT and 5G enablement, advisory, people centric change, process improvement, technology planning, service design, solution integration and implementation.

Our extensive reach into the partner community of IIoT and 5G provide our clients with mindshare of the latest and best purpose designed and built IIoT solutions.

TRUSTED PARTNER

100% - Australian Owned and Operate
Delivery - Programs, Projects and Iterations delivered utilising our hybrid agile method Ei5
Partnering at our core - Complex solutioning and oversight for enterprises
Certified - 5G and IIoT certification

SOLUTIONING EXPERTISE

Smart Peripherals - We bring global proven use cases and quality products and partnerships
Data Management - OSS Data solutions for a IIoT and 5G world
IoT Infrastructure - assessment and procurement of IIoT and 5G infrastructure

Our world leading and cutting edge solutions, services, infrastructure procurement and implementation capabilities enables us to deliver Asia Pacific's leading IIoT and 5G solutions.

We are leading the way for Smart Working and Smart Living through our delivery of holistic solution design.

"THE MEANING OF CONNECTIVITY HAS CHANGED IN THIS NEW WORLD."

Unlocking value from IIoT

Based on our experience when it comes to deploying IIoT solutions, many organisations are challenged with the following:

- Inability to deploy at scale. Today, businesses need every device at every location to be set up individually—which is time-consuming and costly. The more devices there are, the more challenging it becomes.

- Limited management. If organisations can't deploy at scale, then they can't manage all their devices and data at scale either. Currently, there are no off-the-shelf solutions that enable IIoT management.

- Expensive overlay networks. Although there are many options to connect devices to the internet, setting up the right network is complicated, particularly when it comes to security.

- Inability to use data. Overall device strategies can be fragmented, which affects the quality of data coming in for analysis and machine learning.

- Too many fragmented options. Organisations struggle to know where to begin. They don't want to purchase one solution for one need; they want one solution that will meet their needs now and allow them to ramp up in the future.

- Lack of security. Security is a huge barrier to entry—particularly with the risk of threads from multiple attack vectors.

It is our intention in this SOW response to share our experience and knowledge to explain the pathway required for successful IIoT deployment .

The 6 things that make or break an IIoT implementation

SECURITY	**MANAGEMENT**
DATA	**COST EFFECTIVNESS**
SCALABILITY	**AUTOMATION**

We understand that everyone can use a little assistance to get their IIoT investment optimised, well organised, and healthy. That is where we come in and partner with you to ensure your IIoT investment hits the mark and to help your business better engage your customers and employees.
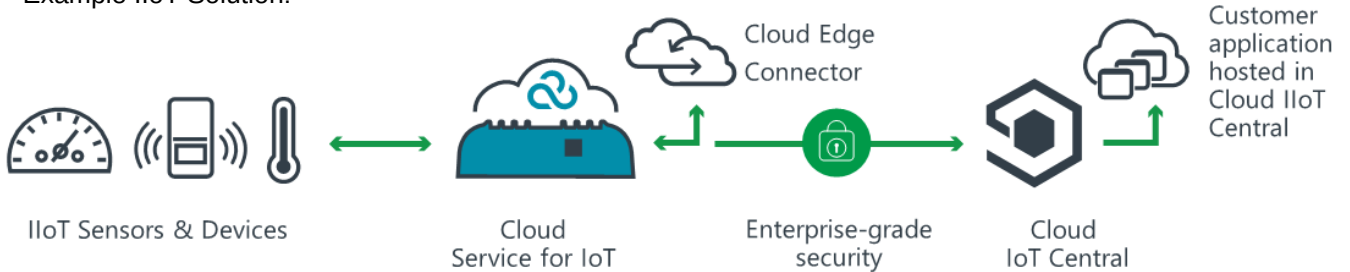
In the next section, we are going to breakdown each of these critical aspects of a successful IIoT implementation including our Point Of View of each aspect.

(1) Security

Example IIoT Solution:

Our view is that through cloud edge we can securely connect people, places, and things with 4GLTE/5G, SD-WAN and cloud services.

Along with security the cloud edge connector delivers a framework that enables IIoT deployments easily, securely, and at scale.

Organisations can set up IIoT sensors and devices via wired or wireless interfaces using a router. These routers then securely connect to a centralised cloud IIoT platform to provide insight, data analysis, and full integration with their applications in the cloud.

Please note that the solution is available through Alchemy Solutions partner community.

KEY POINTS OF VIEW	Secure the IoT Network by implementing traditional endpoint security features such as antivirus, anti-malware, firewalls, and intrusion prevention and detection systems
	Authenticate the IoT Devices by implementing robust authentication mechanisms such as two-factor authentication, digital certificates, and biometrics
	Use IoT Security Analytics and Secure API Solutions that are capable to detect IoT-specific attacks and intrusions

(2) Data

In this new world of peripherals, sensors and devices at the edge, managing the infrastructure supporting massive amounts of unstructured and distributed data could overwhelm an enterprise.

Our view is that we should focus on managing the digital assets, not the infrastructure.

To collect, analyse and report on IIoT Data we recommend utilizing cloud edge connectivity and capability. At the edge data is processed near the data source or at the edge of the network, while in a typical cloud environment, data processing happens in a centralised data storage location.

By processing and using some data locally, IoT saves storage space for data, processes information faster, and meets security challenges.

KEY POINTS OF VIEW	Versatile connectivity and ability to handle data variety is a must. Enterprise connectivity to all of those systems so you can ingest data from those systems. It is equally important that the solution support both structured and unstructured data
	Edge processing and enrichments:. A good data management solution will be able to filter out erroneous records coming from the IoT systems
	Real-time monitoring and alerting: IoT data ingestion and processing never stops. Therefore, your data management and alerts solution should provide real-time monitoring with visualizations to show the status of the process at any time.

(3) Scalability

Our view to achieving great scalability for IIoT rollouts involves using a cloud edge connector with your preference of cloud provider to enable scale in deployments.

Being able to set up one or one thousand locations with the same ease and security is key to streamlining your entire operation.

There are many options already to make deploying office, device and mobile connectivity a breeze—now and to add IIoT capabilities with the same ease.

You can connect many unique sensors to routers and easily deploy one to many routers for deployments.

Every router is centrally configured to your unique specifications, making it simpler to deploy at scale or add locations as needed.

Built-in security makes scale deployment simple, with specialised traffic routing features, the ability to monitor firewalls, VPNs, set up specific security zones, and more.

KEY POINTS OF VIEW	
	Roll out IoT capabilities with the same ease as deploying branch and mobile routers.
	Connect as many unique sensors as you need—even in one-to-many router scenarios.
	Get routers that are centrally configured to your specifications, then deploy as needed.
	Speed mass deployment with built-in security at every layer.

(4) Management

For IIoT management we recommend a software software solution that enables users to track, monitor, and manage physical IIoT devices.

These tools often allow users to push software and firmware updates to devices and sensors remotely.

Additionally, IIoT device management software provides permissions and security capabilities to ensure each device is protected from vulnerabilities.

These solutions are mainly used by IT administrators, and some companies may even employ an IIoT administrator to track the performance, security, and overall state of each connected device.

IIoT device management software may be used in conjunction with IIoT analytics software, IIoT security software, and IIoT platforms, among others.

We have successfully implemented management approaches for IIoT including process and organisational design.

KEY POINTS OF VIEW	
	Easily monitor all aspects of your IoT deployments: device to network, hardware to software.
	Centrally manage, provision, and update remote locations.
	Push out updates, patches, and more at scheduled times or on an as-needed basis.
	Add custom functions for your specific needs with a flexible software development kit

(5) Cost effectiveness

With heavy use, among others, of emerging technologies such as IoT, Cloud – Computing, Big – Data Analytics, AI, Augmented Reality, Robotics and Cyber – Physical Systems (CPS), industries are moving towards creating a more collaborative environment that facilitates greater data exchange, lower costs and increased productivity, also known as Industrial IoT or IIoT.

Increased IIoT investments have been witnessed in the fields of manufacturing, transportation, utilities and healthcare for all the right reasons.

We recommend leveraging IIoT to manage your different business processes better, increase overall performance and reduce costs.

In our view IIoT can be proven across the whole enterprise however with a focus on asset management, maintenance and safety we have provided positive ROI on the investment of IIoT.

KEY POINTS OF VIEW

Comprehensive IIoT solutions can help organizations to keep track of all their assets ' health, location, and efficiency. Assets can range from handheld devices, raw materials to large industrial equipment.

With the help of smart IoT devices on a granular level, your entire inventory can be tracked and tracked anywhere at anytime

Industrial Internet of Things provides real-time access to the supply chain by tracking through the supply chain materials, equipment or products

(6) Automation

Utilizing automation available in proprietary IIoT systems and platforms makes setting up IIoT devices fast and easy, reducing the cost and complexity of deployment.

Most options work with any wired or wireless device or sensor, giving you the ability to deploy almost any kind of device or sensor.

•We recommend selecting a carrier-agnostic system that can support any certified mobile carrier you choose.

The setup process is fully automated; routers can be arranged to be shipped with true zero-touch provisioning. Just plug it in!

We also recommend routers arrangements where the router can be shipped with the right SIM cards, making setup even easier.

A low-code environment for users reduces the amount of IT involvement required to set up devices.

KEY POINTS OF VIEW

Deploy almost any kind of wired or wireless sensor.

Choose any certified mobile carrier you want.

Just plug it in. The setup process is fully automated!

Get your routers with the right SIM cards already installed.

Reduce how much IT needs to be involved with a low-code environment for users.

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