

G-Cloud 15 - ICaaS Service Definition

Smarter Integration - what can it do for G-Cloud 15 buyers?

W3Partnership, having worked in the Integration market for over 15 years, are aware that procurement organisations are coming under increasing pressure to integrate their systems in order to improve processes, enhance the experience for end users, streamline the supply chain and help to future-proof their operations. To do this effectively they need a platform that can be up and running quickly and allow for easy integration with other systems. Integration Connectivity as a Service (ICaaS) is the answer.

Based on Mulesoft Anypoint and hosted on AWS, Smarter Integration is an innovative ICaaS offering from W3Partnership, designed to provide a fully managed integration capability for systems integration. The need for a consultancy-led integration solution, designed from the ground up has gone, and the faster, efficient, managed solution that Smarter Integration offers will save G-Cloud 15 buyers both time and money.

What is “Smarter Integration?”

Smarter Integration will offer G-Cloud 15 buyers a cloud-based solution comprising of a number of standard integration patterns of behaviour, pre-built within the platform. These pre-built patterns can be used to quickly and efficiently, to connect the buyers’ business applications and services in order to provide the right data at the right time.

The pre-built patterns included within the Smarter Integration platform include:

- Assured Delivery¹ – guaranteed to deliver your data to the intended recipient
- Request/Response – processes a request for data and returns the response to the service requester
- Distributed Assured Delivery (or publish & subscribe) – delivers data to one or more subscribers
- Orchestration – enriches the input message with data from other API calls
- RESTful API - acts as an API endpoint to process data in a RESTful manner

These architectural patterns are the core of the Smarter Integration offering. The vast majority of integration service requirements can be fulfilled using these patterns.

A large number of lightweight application and transport adapters are also included within the product, enabling connectivity for any inbound or outbound transport to and from the platform.

¹ The Assured Delivery pattern offers the resilience that the buyer requires as it guarantees delivery of all messages. All data messages are defined as persistent; in the event of any error, the Smarter Integration Exception Handling capability will allow automatic replay of messages if appropriate, or, they will be manually replayed via the W3 DevOps team after suitable error investigation.

Smarter Integration achieves this smoothly by using a combination of common technical microservices, forming the building blocks of each integration pattern. These include:

- Configuration - used to control the process functions
- Authorisation - to determine if the user is authorised to use the service
- Validation - to ensure the input data is in the expected format
- Transformation - to convert the output data into the correct format
- Routing - to ensure the information goes to the correct consumer
- Audit - to maintain a record of the data content
- Performance Measurement - to ensure that the system is running smoothly
- Exception Handling - to ensure the system is running in a consistent fashion

How can SI help G-Cloud 15 buyers derive real business benefits quickly ?

Smarter Integration will deliver a number of benefits to G-Cloud 15 buyers very quickly. The architecture is able to adapt to change because it uses standard protocols, enabling direct linkage and interoperation between different and disparate systems.

As Smarter Integration is offered as a cloud managed service it can help businesses reduce costs in three key areas.

1. Speed of system integration - instantiation of a basic service, using one of the in-built patterns of integration, can be achieved and operational in as little as 48 hours.
2. Flexibility - as the resource demands for a service increase, your Smarter Integration platform will automatically scale to fulfil requirements. Conversely, when demands are less, the resources available to the platform can be reduced.
3. Cost - Smarter Integration is charged on an Operating Expenditure model to ensure there is no large capital expenditure up front. Design, delivery, implementation and full operational management of the integration platform is included in a simple monthly charge.

Together with the potential cost savings highlighted above, Smarter Integration allows interfaces to be reused and it employs pre-built connectors to most business applications as part of an interface portfolio. Smarter Integration delivers results in shorter times to production and helps support speed-to-market business imperatives. The critical capability of the platform is to support customers and associates in ensuring that the correct data is always delivered to the appropriate person at the right time to allow them to work effectively.

Smarter Integration includes a security layer that protects G-Cloud 15 buyers' digital assets by always ensuring data is transferred securely. It makes it simple to employ data governance and access control rules as well as keeping control and visibility of integration flows.

In addition, the platform ensures failures can be swiftly detected and monitored all the way through to resolution.

Hands free development and service management

Smarter Integration provides a fully managed service, which will take as input a requirement definition for the connection of two or more systems, and deliver a working, managed and supported integration to G-Cloud 15 buyers.

A major advantage of Smarter Integration is that it requires minimal specialist knowledge to manage the platform which would help G-Cloud 15 buyers if, in the future, they wish to train internal teams to do so.

Smarter Integration is designed to work with Industry standard open source software. As a result, the range of adapters and connectors for systems is extensive and allows for integration with some of the popular commercial packages including: SAP, Salesforce.com, Workday, ServiceNow, and many more cloud and on premise applications. All popular databases are also supported via JDBC (or ODBC) connections.

Reusable code

Smarter Integration uses a series of technical microservices to create base flows, each of these representing a specific pattern of behaviour. A large number of inbound transport adapters allow for data to be delivered to the integration framework, or collected from external systems for processing. Similarly, outbound adapters allow for data to be delivered to consumers, or service providers, using the transport required or preferred by that system.

The benefit of this approach is that adding new systems to the integration becomes a very straightforward task. The only artefacts needed for any new service are:

- (i) Configuration data to define how the service operates,
- (ii) Validation information to ensure that the input data is in the expected format, and
- (iii) Any data mapping or enrichment details to transform the data into the format required by the sending/receiving applications, or users.

Continuous delivery

Smarter Integration is built with Continuous Integration, Continuous Delivery and Continuous Testing (CI/CD/CT) in mind. It employs tools such as Jenkins, Docker and Chef to ensure that application deployments are fully controlled and automated right across the environment stack.

Because the implementation of integration services is driven by configuration data, the properties within the Smarter Integration platform are created to be environment specific; meaning the same service implementation can be deployed to development, test and

production environments, with only a property file amendment. These properties files are all under the control of the CI/CD/CT tools.

Performance

The Smarter Integration platform is built on AWS's EC2, S3 & Lambda products and therefore benefits from inherent scalability, reliability and resilience. Multiple instances of the platform are defined in order to ensure 24x7x365 availability, as required by the buyers. Traffic to the Smarter Integration platform is load-balanced. The planned removal of an instance from the cluster allows for any required maintenance to be carried out whilst ensuring full availability.

All exceptions or problems are alerted and managed according to the contract of behaviour, e.g. for services that adhere to the assured delivery pattern, the exception is automatically logged, the input message data stored for replay and an email alert issued.

Audit and logging

The platform provides comprehensive auditing capabilities, with configuration allowing audit data to be captured at a number of different levels. This includes auditing only the message headers; the full message or specific fields within the input message. This can also be defined for both pre- and post-transformation.

Audit processing is carried out asynchronously to ensure that it has minimal impact on transaction processing time or latency.

Logging is carried out as standard within each transport adapter, both inbound and outbound, and within each base flow. The log data displays information allowing administrators to have a clear view of transaction processing.

Security

It is vitally important in today's increasingly digital economy to keep information secure at all stages, including data in transit. Smarter Integration has been designed from the outset as a cloud service capability, and supports the latest data encryption and cryptography standards. This includes TLS (formally known as SSL), the industry standard authentication protocol, and OAuth1 and OAuth2 for more sensitive applications. With GDPR legislation becoming enforceable this year, controlling data is ever more critical, and Smarter Integration is designed with this in mind. It employs role-based security throughout to provide the appropriate level of access for groups of individuals.

User interface

Smarter integration also provides a graphical user interface which will provide G-Cloud 15 users with a robust tool for monitoring system performance, user rights for the platform, statistics related to ongoing performance and ability to raise service tickets.

Rapid and robust integration in as little as 48 hours

So, how does all of this add up to faster and more efficient integration projects? As a cloud service we can put in place a working core service at G-Cloud 15 users within as little as 48 hours allowing you to start your integration project quickly and efficiently.

Because Smarter Integration uses a pattern-based approach, the code base is deployed once and rarely needs to undergo change. Configuration is provided as a set of properties, making it easy to deploy and manage. Each property file contains all of the configuration information needed to execute the service, including validation, transformation, logging, audit and so on.

As the property information is accessed dynamically, there is no need for re-deployment of the main patterns, even if the configuration data needs to be changed. The configuration data can be built, tested and deployed with no need for coding; making the development life cycle shorter and removing the need for any application downtime.

The managed service provided by Smarter Integration will help G-Cloud 15 users move quickly and efficiently to address integration and connectivity challenges. The implementation approach is designed to be robust and requires minimal technical knowledge on the part of the client.

All of this adds up to a platform that can be implemented quickly and securely to help G-Cloud 15 users deliver on integration projects, while offering a fully future-proof and cost effective solution.

Why G-Cloud 15 users should choose Smarter Integration?

In summary, Smarter Integration allows for the following benefits over traditional services lead integration projects

No development costs: all development of the service artefacts to be deployed to Smarter Integration will be carried out by Smarter Integration consultants to your specification. The only requirement is for the service details to be relayed to our consultants to enable them to be created successfully.

No hardware costs: Smarter Integration is a cloud solution – an Integration Capability as a Service. All your integration services will be hosted on Smarter Integration meaning you have no hardware to purchase, no virtual machines to commission and no operating systems to upgrade.

No Operations / DevOps costs: Smarter Integration's internal DevOps team will ensure the smooth operation of your integration services. Hence, your own Operations / DevOps Team can be allocated to administer your in-house business-critical systems.

No product / package costs: Smarter Integration has been coded using open-source software to ensure our prices can be as competitive as possible. With no product or package costs to pay, you can be assured that this is the most cost-effective solution to your Integration requirements.

Monthly subscription model: rather than a large annual payment, spread your costs as Smarter Integration is priced as a monthly subscription. We guarantee that the total annual cost will be a fraction of the cost of an in-house integration solution.

Scalability / Availability: using the computing power of one of the world's main cloud providers, Smarter Integration is fully scalable and totally available. As your integration demands grow, more processing power is instantly available to cater for your requirements. The clustering approach inherent within Smarter Integration provides for 100% availability.

Speed to market giving massive ROI: using our unique patterned-based approach, the technical integration flows you require are already built. All that is required is the deployment of the validation and transformation artefacts as required, as well as the configuration data to control the processing of your services. Our consultants will create and deploy these artefacts on your behalf to instantiate each of your services. With this design, you can expect to have a service operational within 48 hours thus immediately providing a return on investment.