Solution Conformance Certification Report

Business Process Framework (eTOM)
&
Information Framework (SID)

For:

Whale Cloud Technology Co., Ltd

ZSmart 9

May 2026

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1 Introduction

1.1 Executive Summary

This section provides details of Whale Cloud Technology (rebranded from ZTESoft) self-assessment and TM Forum's Conformance Assessment of ZSmart9 product, against the following ODA Core Frameworks:

- Business Process Framework (eTOM) version 25.0
- Information Framework (SID) version 25.0

The assessment included a review of the methodology approach to process and information modeling, respectively against the TM Forum's Business Process Framework (eTOM) and the Information Framework (SID) according to the specific processes and entities submitted in scope for the Assessment.

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2 Solution Overview

2.1 Whale Cloud Technology ZSmart9 – Product Overview

Whale Cloud Technology Co., Ltd. is a global telecom software and digital technology provider serving communications service providers, governments and enterprise customers. Its portfolio spans BSS, OSS, Data Intelligence (DI), Artificial Intelligence (AI), Cloud Computing, Digital Experience, IoT and industry digitalization solutions.
ZSmart 9 is Whale Cloud's cloud-native, AI-enabled BSS/OSS suite for CSP digital transformation. It is designed to support open, modular and standards-aligned operations across customer engagement, product and catalog management, order-to-cash, service and resource orchestration, inventory, assurance, field operations and intelligent O&M.
The solution reflects Whale Cloud's current positioning around open, intelligent and future-ready digital operations. The Whale Cloud online platform highlights ODA-compliant B/OSS solutions, AI-driven no-code capabilities, domain-specific low-code plug-in frameworks, SID-based ontology and unified data modeling, cloud-agnostic deployment, standardized API monetization, and open AI-ready frameworks.
Across the product descriptions reviewed for this assessment, ZSmart 9 provides a complete Product-Service-Resource operating model: product catalog and offering management in BSS; service catalog, service order and service inventory in OSS; resource inventory, resource order, provisioning, workforce, GIS, performance, fault, service level and cloud operations management across the resource and assurance domains.
The platform therefore supports CSPs in launching and operating telecom and digital services faster, while improving process automation, data consistency, service visibility, resource utilization, partner integration and AI-assisted decision making.

ZSmart 9 is all about digital business enablement with following key features:

AI-Driven, Omni-Channel Experience: Uses advanced big data analytics and AI technology to exploit potential customer insights; an analytics-driven customer journey across different touch-points; real-time, personal, proactive, omni-channel interaction and shopping experience that rivals with the best in e-commerce.

Digital Services and 3rd Party Product Offering: Leverages a centralized product catalog, order-to-bill for legacy, as well as 3rd party products and services, are guaranteed. Easy partner on-boarding makes sure there are always new offers for customers.

5G and IoT business Ready: To cater for 5G and IoT service characteristics, ZSmart 9 has made revenue management enhancements. For IoT service operators, a self-care portal with eSIM management and troubleshooting ticket system is provided as standard.

Partner Value Fabrics Monetization API: Creates greater value among business partners by providing support from your organization, sharing capability and insights securely via a set of APIs conformance to TM Forum Open API standards.

Digital Service Orchestration & Automation: Helps CSPs share digital service to the SME tenants, fasten time to market and build digital ecosystems with an open, flexible, fully integrated ZSmart AnyShare platform, which supports cloud XaaS offerings, VNF-FGaaS, on-demand SDN, and DevOps environment for third-party Independent Software Vendors (ISV)

Telecom Platform as a Service: Offers opportunities for CSPs to apply technological know-how to the physical world, accelerating traditional industry's digitalization progress.

Elastic Operation: Elastic Operation is the key element to achieve elastic networks promise flexibility, scalability and cost efficiency, including: full automation and horizontal scalability (service creation & operations) and closed loop monitoring, analytics, policy and orchestration.

For more information on our products and services, visit our website at: www.whalecloud.com

3 Solution Functionality / Capability

3.1 Whale Cloud ZSmart 9 Highlights

Open, ODA-aligned architecture
ZSmart 9 is positioned around open architecture, TM Forum Open API alignment, SID-based data modeling and modular B/OSS capability exposure. This supports integration across internal systems, channels, partners and ecosystem applications.
ZSmart 9 provides full-range APIs to realize unified service registration, flexible API orchestration, and multiple protocols conversion. It brings CSPs with unified multi-channel service access, minimizes customization applications, and shortens the Time-To-Market for new business rollout. In addition, ZSmart 9 provides consolidated product catalog which supports both telecom products and vertical industry products.

AI-driven digital operations
Whale Cloud's AI capabilities, including WhaleDI AI, LocalGPT and AI-assisted OSS scenarios, support analytics, knowledge assistance, prediction, anomaly detection, service optimization and proactive O&M.

Composable digital BSS
The BSS layer supports customer management, product catalog, product offering, pricing, order handling, charging, billing, partner enablement and omni-channel engagement. This enables rapid product launch and monetization of telecom, digital and third-party services.

End-to-end OSS fulfillment and assurance
The OSS layer supports service catalog management, service order management, resource order management, service inventory, resource inventory, provisioning, workforce management, operation flow management, service level management, performance management, fault management and unified collection.
Product-Service-Resource traceability
ZSmart 9 links product specifications and offerings to CFS/RFS service models and then to physical and logical resources. This supports consistent fulfillment, assurance, impact analysis and lifecycle governance.

Resource and network intelligence
Resource Inventory Management, GIS, network topology, capacity monitoring, discovery and synchronization provide end-to-end visibility of network resources, relationships, locations and utilization.

Cloud-native and DevOps-enabled operations
ZSmart Cloud Manager supports application lifecycle management, CI/CD, automated deployment, upgrades, monitoring, alarms, logs, elastic scaling and multi-cloud resource adaptation.
With the cloud-native architecture design and a variety of capability centers for both telecom and enterprise customers, ZSmart 9 enables CSPs towards their digital transformation journey.

Based on general distributed technology platform, ZSmart 9 introduces micro-service, high-performance distributed asynchronous message queue, distributed cache, distributed database components. In ZSmart 9, data and application are separated; application can be dynamically scale-out/in on demand. This ultimately achieves high data availability, stateless billing & charging, and extremely load data processing.

Operational visibility and governance
Dashboards, monitoring, SLA assessment, logs and analytics provide management visibility across business, service and resource processes, supporting TM Forum eTOM and SID certification evidence.

Digital Experience
ZSmart 9 enables CSPs to facilitate the digital life for their customers. CSPs can deliver precise and personalized marketing campaigns with 360° customer insights analytics, engage and interact with them through omni-channels. The solution also allows CSPs to disseminate a wealth of assets including marketing trends, historical data and insights, and open data capabilities to third party partners, and helps CSPs onboard vertical industry product catalogue and provides digital services to customers in addition to traditional telecom products and services.

End-to-End Intelligent Operation & Maintenance
Capacity wise, CSPs can scale-in or scale-out with click-of-button in ZSmart ZCM, which is the integrated cloud application manager of ZSmart 9; functionality wise, A/B testing feature allows CSPs to apply specific function/release to target segments, enables fine-tuning of functions to cater custom preference. ZSmart 9 realizes system health monitoring, automatic diagnosis and fault processing suggestions. Furthermore, it also provides rich visual multi-dimensional interfaces for comprehensive monitoring, to enable CSPs with comprehensive, end to end, intelligent operation and maintenance.

IoT & Vertical Business
ZSmart 9 supports not only traditional telecom but also cross-industry businesses. With integration of big data and AI capability, ZSmart 9 offers intelligent capabilities and features, such as chatbot-powered agent for customer service, AI-driven marketing, analytics-driven IoT business for various business scenarios, e.g. Retail, Finance, and City.

E2E orchestration platform for SDN/NFV Enablement
ZSmart 9 adopts SDN/NFV technologies to improve operational efficiencies, such as unified customer views across all lines of business and meeting the growing demand of consumers and enterprises for a greater range of digital services and greater flexibility in delivering 5G microservices on an on-demand and network slicing basis. It offers a full-suite solution along with SDN, NFV management and orchestration (MANO) and real-time analytics solutions targeting closed-loop automation with artificial intelligence/machine learning (AI/ML) and orchestration.

On-demand SaaS

The microservices based, cloud native ZSmart 9 solution adopts SaaS model to facilitate CSPs to expand into new revenue territory, beef up experience & offering, and cut down TTM. It offers options for CSPs to pick and choose what, when and how to deploy the desired services in the cloud, dynamically modify scope and scale to best meet respective business needs.

3.2 Whale Cloud ZSmart 9 Supported Installation Models

Whale Cloud ZSmart 9 supports 3 installation models:

- On-premises deployment for operators requiring full control over infrastructure, data and operations.
- Private cloud deployment for cloud-native operations within a dedicated operator or national cloud environment.
- Public cloud deployment where business, compliance and integration requirements allow cloud-hosted operation.
- Hybrid cloud deployment combining on-premises, private cloud and public cloud components for phased transformation and workload optimization.
- Managed cloud or SaaS-style deployment may be adopted where agreed in the project scope, especially for digital BSS, ecosystem, AI or cloud-native service scenarios.

4 ZSmart9 – Benefits

ZSmart 9 provides the following business and operational benefits for CSPs and digital service providers:

1. **Faster Time-to-Market**

   ZSmart 9 enables CSPs to launch new products, services, bundles, and digital offerings faster through centralized catalog management, reusable service models, and automated order orchestration. Product, service, and resource definitions can be configured and reused across multiple channels and business scenarios, reducing the time required for new service rollout.

   Through the service catalog, product catalog and order orchestration features, it is possible to transform from a model of launching new products and services on an individual basis, to launch new services on an on going basis through a more efficient and controlled digital launch process.

2. **Improved Operational Efficiency**

   By enabling automation in Fulfillment, Assurance, Inventory, Provisioning, Field Operations and Workforce Management, ZSmart 9 reduces manual intervention and therefore removes errors caused by manual intervention. It also simplifies and streamlines complex processes and eliminates hand-offs between departments.

   Orders are decomposed into tasks, resources are allocated, provisioned, tasks are scheduled for execution and inventory is updated for fulfillment, assurance, and other functions within the telecoms operation. Integrated workflows are created to manage such complex functions within telecoms operations in an efficient and accurate manner.

3. **Enhanced Customer Experience**

   Consistent Customer Experience: ZSmart 9 facilitates a single view of customer information along with details of products and services offered and resources utilized to deliver service to customers. Information is provided to customer-facing employees through a range of channels including CRM systems, web portals and mobile applications as well as via customer self-service (web and mobile), retail POS systems and contact centers. Consistent information delivered to employees enhances customer service delivered by employees and leads to improved customer experience across all channels of interaction.

   Customer service teams can provide a better customer experience by having a better view of their customer's services, their service status, their orders, faults and interactions with the customer in all of these areas. The teams can respond to customer's queries and requests faster and provide a better more personal service to them as required.

4. **End-to-End Digital Transformation Support**

This can support CSPs in their complete transformation from traditional telecoms operations to fully digital, cloud-native and platform-based telecoms operations, incorporating all BSS and OSS functions.

CSPs will be able to modernize their existing telecom operations and, at the same time, progress gradually to implementing new digital capabilities and automating their processes by using services offered via APIs, as well as by integrating AI solutions into their operations and enabling them to interact with partners and third parties.

5. **Better Resource Utilization and Capacity Management**

With ZSmart 9, CSPs can manage better their physical and logical resources using their resource inventory, resource order management, network topology, GIS and performance monitoring. This will enable the CSPs to allocate resources better, monitor their capacity, check feasibility of new services, and manage resources' lifecycle.

ZSmart 9 also helps telecom operators make better use of their resources by supporting the management of all types of resources (physical and logical) including monitoring of their capacity. It enables a feasibility check before allocating resources for a task, and supports a complete lifecycle management of resources. Thus, telecom service providers can make best use of available resources and avoid wastage, and plan for additional capacity as and when required.

6. **Stronger Service Assurance and Quality Management**

ZSmart 9 supports Service Assurance by providing Performance Monitoring, Fault Management, Service Level Management and Real Time Dashboards and Workflows to support the CSP's in the monitoring of the services, to identify any potential problems, to track the Key Performance Indicators against agreed Service Level Agreements and to take corrective action where necessary to maintain high quality of service to its Customers.

By linking Service Inventory with Resource Inventory and Performance Data the better Service Management is possible, by enabling better Root Cause Analysis, Service Impact Analysis and Fault Resolution.

7. **AI-Enabled Proactive Operations**

ZSmart 9 also supports AI-assisted operation and maintenance by enabling the KPIs to be forecasted, by setting dynamic thresholds, by identifying anomaly, by correlating alarm and by predicting equipment failure.

With ZSmart 9's AI-enabled operation and maintenance capabilities such as KPI trend prediction, dynamic threshold, anomaly detection, alarm correlation and equipment failure prediction, ZTE helps CSPs transition from a purely reactive OM mode to a proactive OM mode, anticipating and pre-emptively dealing with any potential problems to guarantee optimal service quality.

8. **Cloud-Native Scalability and Flexibility**

   We can deliver the Service Management solution as a part of the cloud-native ZSmart 9 environment which follows a microservice-based architecture. And, for the Network and Service Management, our solution can be deployed in on-premise environment, or in Public Cloud or in Hybrid Cloud environment.

   The solution supports cloud management, containerized solutions and automated management of upgrades and monitoring of performance. This enables operators to manage their resources on an 'on demand' basis to meet peak business requirements, thus reducing the reliance on legacy solutions that are no longer able to support rapid business growth.

9. **Open Integration and Ecosystem Enablement**

   Integration for all Internal Systems & External Partners & 3rd Party Applications & Digital Ecosystem Services.

   This enables quicker onboarding of new partners, API monetization, exposure of services to new markets and even across domains. As a result, CSPs can develop and offer a wide variety of platform-based services and offer new telecom services to customers.

10. **Improved Governance, Compliance, and Control**

    The solution supports structured lifecycle management (service, product and resource) and therefore Role-Based Access Control, Approval Processes, audit logs, change logs, version control, as well as tracking and reporting for all change activities across the different domains of services, products and resources.

    This enables governance and traceability of all changes introduced to the catalog, inventory, orders, resources and services in a structured manner and in compliance with an organization's policies.

11. **Reduced Operational Cost**

    Automate key processes and reduce manual interventions. Schedule your workforce more efficiently, manage your spare parts more effectively and get the best possible return from your existing resources. ZSmart 9 thus reduces your OPEX and avoids unnecessary CAPEX.

    In addition to the above advantages, automating key operational processes, reduced manual intervention, improved scheduling of work force and resources, optimum use of spare parts and better use of existing resources to deliver higher value to customers reduces the operational expenses of CSPs thereby lowering their OPEX and avoidable CAPEX.

12. Support for Future Services

ZSmart 9 is designed for new telecom and digital services to support emerging business scenarios such as 5G, IoT, cloud, network slicing, enterprise services, etc. for partner-led digital services in order to introduce new technologies into the market without changing the whole back-end operation support system.

ZSmart 9 is designed to enable future services and business scenarios as CSPs can use the solution's modular architecture for introducing new technologies, new services and new business models while leveraging existing functions and operational capabilities. In order to introduce new services CSPs can use the solution's catalog driven models and the abstraction of services and resources.

5 Business Process Framework v25.0 – ZSmart v9 – Conformance Scope

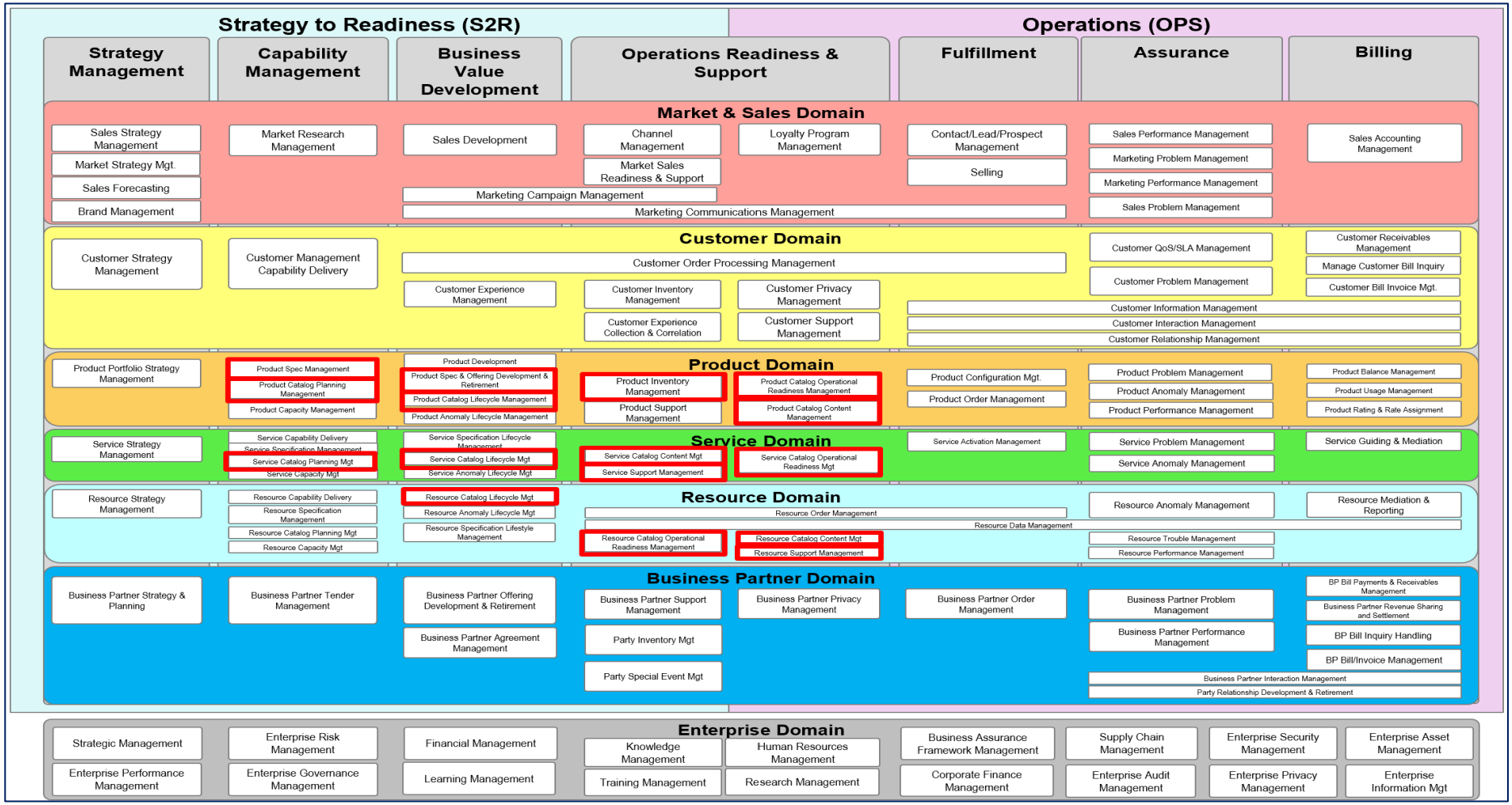


Figure 1 - Process coverage for ZSmart 9 - Conformance Certification

6 Information Framework v25.0 – ZSmart v9 – Conformance Scope

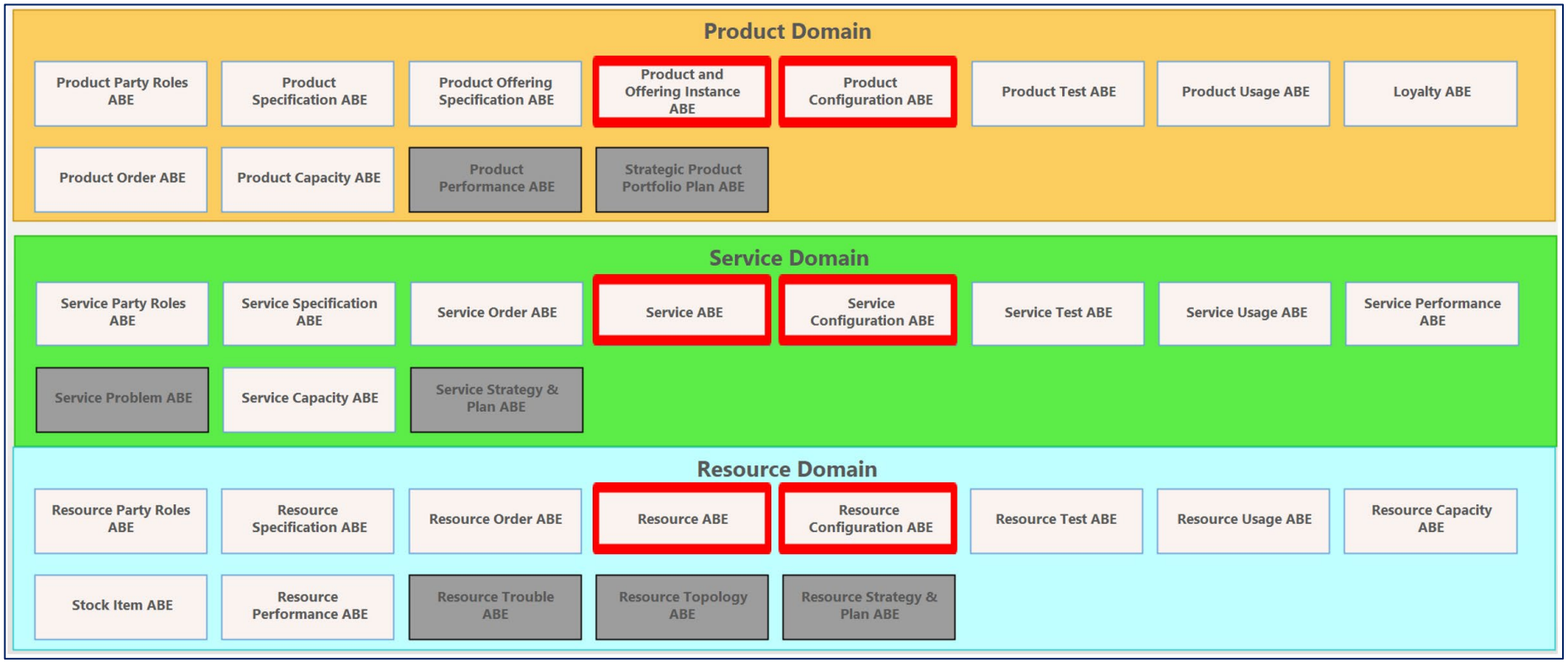


Figure 2 - ABE coverage for ZSmart 9 - Conformance Certification

7 ZSmart 9 – Product Scope

The ZSmart 9 Architecture has been designed as a cloud-native, AI-enabled digital B/OSS platform enabling customer engagement, business operations, service fulfillment, assurance, analytics, cloud management and platform functions to operate as a single, fully integrated architecture.

We see the architecture in four layers of functionality namely Front-end System of Engagement, Integration Layer, Mid-end Capability Center / System of Records and Cloud Management. On PaaS foundation these functions enable faster digital services creation, better customer experience, automatic processes execution and scalable operations support in multiple cloud environments.

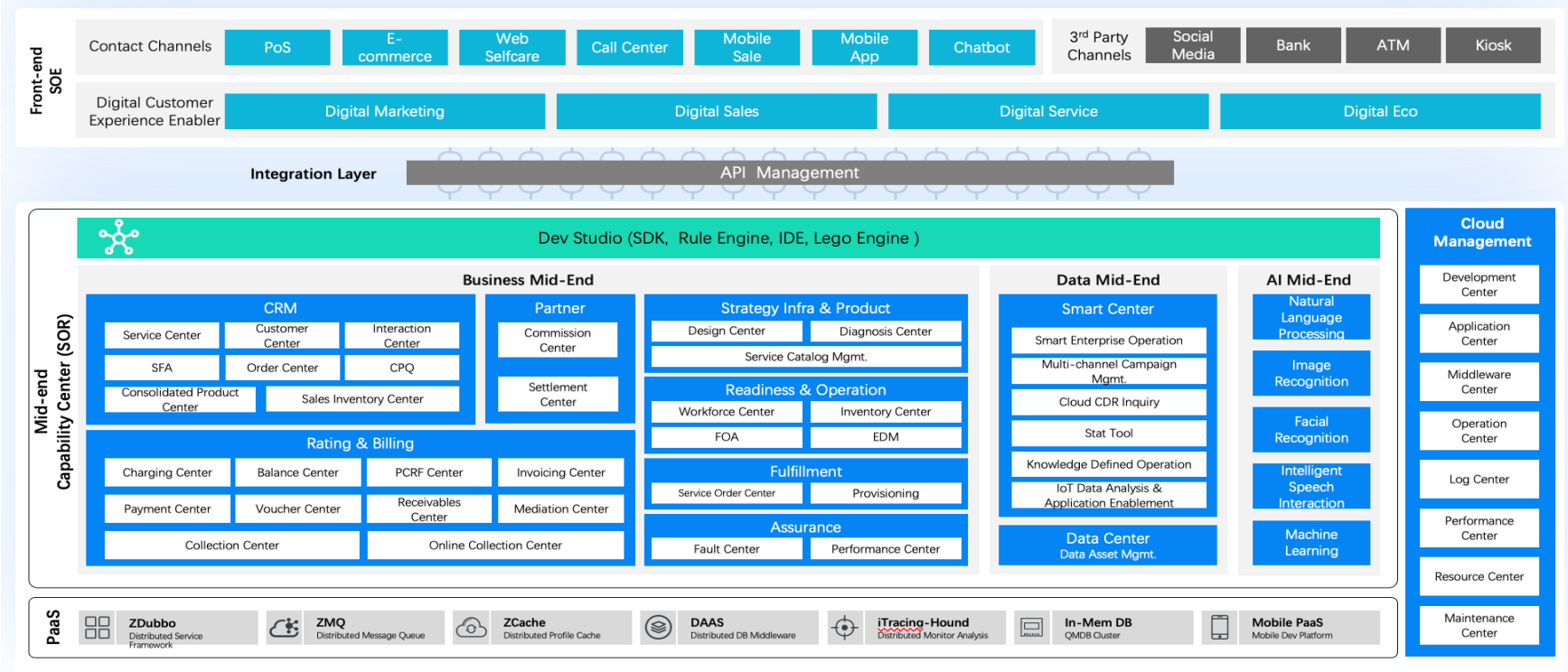


Figure 3 ZSmart Product – B/OSS Function Infrastructure

1. **Front-end System of Engagement**

The front-end System of Engagement provides unified access for customer services, for sales, for partners and for digital users in general, such as customer care via web and mobile Self-care, Call Center, retail (PoS), mobile sales, and more also, for third parties such as Social Media, Bank, ATM, Kiosk, etc.
It includes contact channels such as:

- PoS
- E-commerce
- Web Self-care
- Call Center
- Mobile Sale
- Mobile App
- Chatbot

It also supports third-party channels such as:

- Social Media
- Bank
- ATM
- Kiosk

This layer enables CSPs to deliver a single digital experience across all physical & digital, mobile & assisted, and partner channels. Digital Customer Experience Enabler

- Digital Marketing
- Digital Sales
- Digital Service
- Digital Ecosystem

ZSmart 9 does not only allow transactions to take place, but also enables the CSP to manage the complete customer journey, i.e. marketing, sales, service & ecosystem.

2. **Integration Layer and API Management**

The integration layer allows for connection of front-end digital interfaces to back-end business capabilities via API management.
This layer enables:

- Secure API exposure
- Channel integration
- Partner integration
- Service orchestration
- Reuse of business capabilities across different channels

It also facilitates the reduction of the 'tight coupling' of systems, which enables CSPs to rapidly launch new channels and services, bring on board new partners, and offer specific B/OSS functions and services via APIs.
The integration layer acts as a "digital bridge" between customer facing systems and core B/OSS capability centers (such as the OSS/System-of-Records).

3. Dev Studio and Configuration Enablement

The architecture includes a Dev Studio layer with:

- SDK
- Rule Engine
- IDE
- Lego Engine

Configuration, customization of several parameters, definition of rules as well as a number of other functions provided by this layer for business as well as for IT people who develop additional services in the CSP.
The Dev Studio consists of SDKs, configuration and customization means, a rule engine and an integrated development environment (IDE), the Lego-Engine (see also Section 4.4). The entire Dev Studio supports business processes and business parameterization on the one hand and supports to extend core B/OSS applications by additional modules or even full applications on the other hand.

4. Mid-end Capability Center / System of Records

The Mid-end Capability Center / System of Records: This is the core system layer of the architecture that consists of the main business and operational capabilities required to run telecom and digital services offered to end customers and business users.
It is divided into the following major domains.

4.1 Business Mid-End

The Business Mid-End functionality comprises of modules such as CRM, Partner Management, Rating & Billing, Strategy Infrastructure & Product, Readiness & Operation, Fulfillment and Assurance.

CRM Domain

The CRM area includes:

- Service Center
- Customer Center
- Interaction Center
- SFA
- Order Center
- CPQ
- Consolidated Product Center
- Sales Inventory Center

The components of the CRM area support customer management, sales force automation, quote and product configuration, order capture, customer service and customer interaction management.
The different modules within the CRM area support CSPs to have a unified customer- and product-view for sales and service in order to manage the complete customer life cycle in an effective manner.

Partner Management
The Partner domain includes:

- Commission Center
- Settlement Center

Support partner settlement, commission calculation, and other aspects of ecosystem monetization by the CSP through its dealers, distributors, digital partners, OTT partners, and third-party service providers.
This domain is important for CSPs that want to work with dealers, distributors, digital partners, OTT partners, etc., and want to monetize their ecosystem through these third-party service providers.

Rating and Billing
The Rating & Billing domain includes:

- Charging Center
- Balance Center
- PCRF Center
- Invoicing Center
- Payment Center
- Voucher Center
- Receivables Center
- Mediation Center
- Collection Center
- Online Collection Center

This provides complete monetization capability for all types of services such as prepaid, postpaid, hybrid, telecom and digital services as well as services provided by partners. Complete monetization capability for prepaid, postpaid, hybrid, telecom, digital, and partner-based services, covering charging, billing, payments, receivables, mediation, voucher handling, collections and policy control for service provisioning.

4.2 Strategy Infrastructure and Product

This area includes:

- Design Center
- Diagnosis Center
- Service Catalog Management

This layer supports the design of services and products, their service modeling and planning as well as their creation as catalog-driven operations and their diagnosis.
This layer enables the translation of market requirements into a structured model of product, service and resources for a company. This is used for service fulfillment in an automated manner and aligned with the ODA (Open Decomposition Approach) principles. The TMF-style chain for the layer Product is as follows:

- Product → CFS → RFS → Resource.
- Product → CFS → RFS → Resource

This layer helps to translate market requirements into structured product, service and resource models for Service Fulfillment and automation purposes. It also supports the TMF-style chain of: Product ⟶ CFS ⟶ RFS ⟶ Resource in order to align with the ODA principles.

4.3 Readiness and Operation

This area includes:

- Workforce Center
- Inventory Center
- FOA
- EDM

It supports the operational setup of a workforce, inventory, field operations and engineering data as to be able to start delivering services and to maintain them afterwards.
This domain enables an organization to ensure it has the required workforce, resources and the corresponding data to provide services and to maintain them.

4.4 Fulfillment

The Fulfillment domain includes:

- Service Order Center
- Provisioning
- End to end service fulfillment from order capture till activation.

The Service Order Center manages service order decomposition and orchestration, while Provisioning converts service requests into executable network or platform commands.
This automation support of Service Delivery automatically processes the Service Request(s) until the Service(s) have been activated as required.

4.5 Assurance

The Assurance domain includes:

- Fault Center
- Performance Center

This domain supports service and network assurance by monitoring faults, alarms, performance indicators and overall health of the service and network to detect problems, analyze service quality problems, identify root cause of a problem, etc. to deliver best customer experience possible by fixing problems as quickly as possible.
It helps identify problems, analyze service quality and causes of anomalies in order to resolve customer issues as quickly as possible and to provide them with best possible service in order to increase customer satisfaction.

5. Data Mid-End

The Data Mid-End provides enterprise data and operational intelligence capabilities for a Smart Enterprise.
It includes:

- Smart Center
- Smart Enterprise Operation
- Multi-channel Campaign Management
- Cloud CDR Inquiry
- Stat Tool
- Knowledge Defined Operation
- IoT Data Analysis & Application Enablement
- Data Center / Data Asset Management

Layer that supports customer analytics, marketing analytics, operational analytics, campaign intelligence, CDR analysis, IoT data analysis, and data asset management. This layer supports customer analytics, marketing analytics, operational analytics, campaign intelligence, CDR analysis, IoT data analysis, and data asset management.

6. AI Mid-End

The AI Mid-End offers intelligent functionality that can be reused in all customer experience and operations as well as in analytics and automation scenarios.
It includes:

- Natural Language Processing
- Image Recognition
- Facial Recognition
- Intelligent Speech Interaction
- Machine Learning

Machine Learning: Supports various types of prediction for all application cases and supports anomaly detection for enhanced operations. It is used in various AI assisted processes.
This platform is ideal for an AI-enabled digital transformation where AI is used to serve both customer experiences and operations.

7. Cloud Management

Cloud Management AI Layer - Cloud Management.
It includes:

- Development Center
- Application Center
- Middleware Center
- Operation Center
- Log Center

- Performance Center
- Resource Center
- Maintenance Center

The new layer supports DevOps, application lifecycle management, the management of middleware services, performance monitoring, log analysis, resource management and maintenance in general.
It supports cloud-native deployment, automated upgrades, elastic scaling, and monitoring and controlling of operating in real time.

8. PaaS Foundation Layer

The PaaS layer forms the distributed technical base for the entire platform.
It includes:

- ZDubbo: Distributed service framework
- ZMQ: Distributed message queue
- ZCache: Distributed profile cache
- DAAS: Distributed database middleware
- iTracing-Hound: Distributed monitoring and analysis
- In-Mem DB: In-memory database / QMDB cluster
- Mobile PaaS: Mobile development platform

ZDubbo, ZMQ, ZCache, DAAS, iTracing-Hound, In-Mem DB and Mobile PaaS form the PaaS Foundation Layer. The Layer supports high availability, performance, scalability, distributed communication, caching, monitoring and mobile capability support for microservices and very large telecom operations.
The layer of PaaS in ZSmart 9 supports microservices and large-scale telecoms operations.

Overall Architecture Value

The ZSmart 9 architecture offers a complete digital B/OSS environment. All aspects such as customer interaction, business operations, service design, service provisioning and assurance as well as analytics, artificial intelligence and cloud management are interconnected. The architecture enables CSPs to switch from a classical silo approach to a more integrated digital B/OSS environment, which can be deployed in a cloud-native and DevOps-based environment.

It supports CSPs in their transition from traditional siloed B/OSSs to a fully integrated cloud-native B/OSS that is API-driven and supported by AI.

In practical terms, ZSmart 9 helps CSPs:

- Engage customers through multiple digital and physical channels
- Configure and launch products and services faster
- Automate order fulfillment and provisioning
- Manage billing, charging, settlement, and collections

- Monitor faults, performance, and service quality
- Improve field operations and workforce efficiency
- Use data and AI for proactive decision-making
- Support cloud-native scalability and DevOps-driven operations
- Enable partner ecosystems and third-party channel integration

A concise summary of the architecture is:

Sell → Fulfill → Assure → Monetize → Analyze → Optimize with AI - after Engage and Integrate (with Design and current Sell processes) and after having gone through existing Design processes and integrated with Integrate processes.
Overall, the following image explains the ZSmart 9 architecture in terms of BSS, OSS, IoT & AI domains respectively.

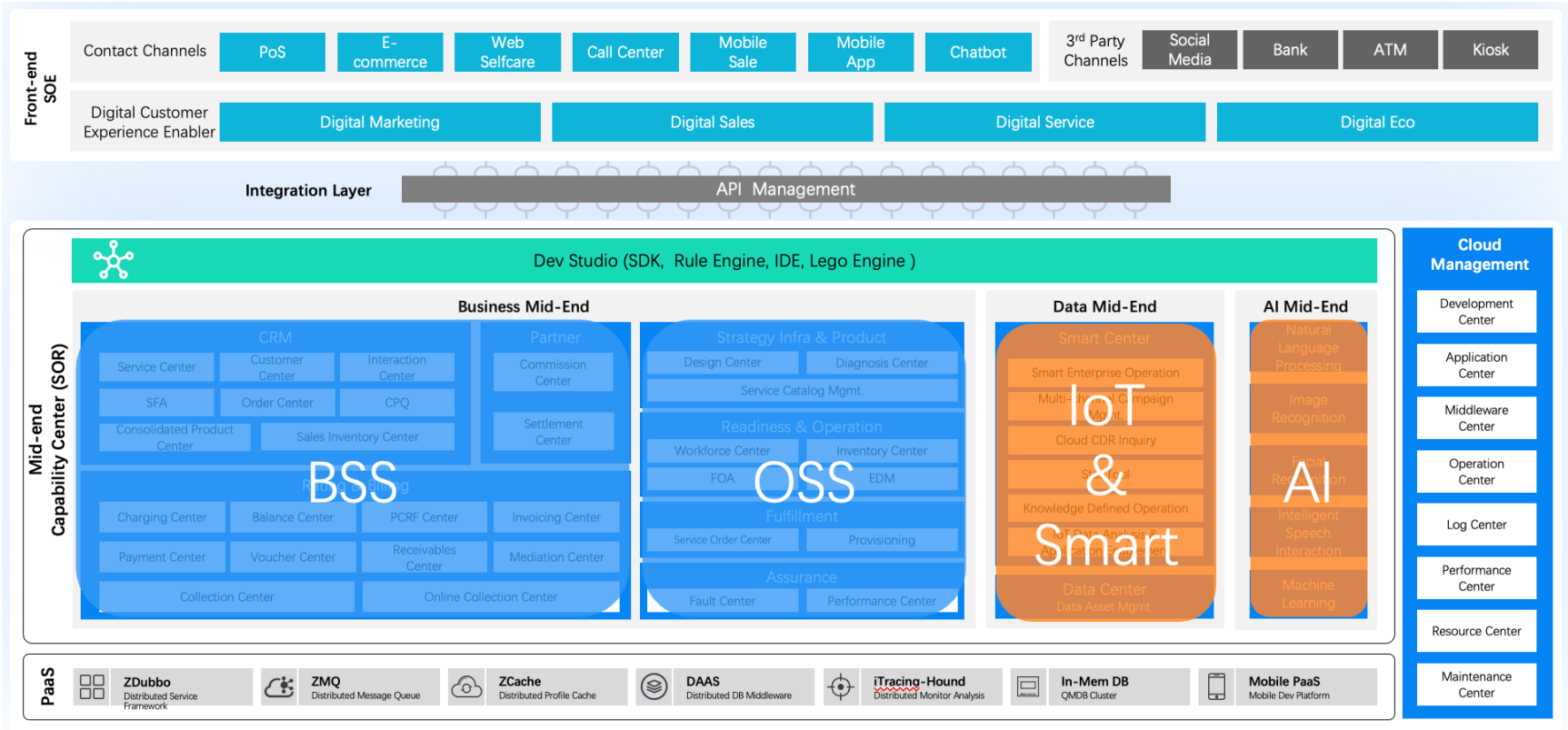


Figure 4 ZSmart Product – B/OSS Function Infrastructure

8 Business Process Framework Assessment Overview

8.1 Mapping Technique Employed

Business Process Framework Level 3 descriptions are analyzed by focusing on implied tasks also referred to as implied functional requirements. (This is how process decomposition can use Semantic Analysis). Each Business Process Framework process is supported by descriptive text. In many cases, each process is aligned and mapped to appropriate company documentation references solution, methodology or modeling material.

Color coded text as highlighted below is used as part of the process mapping whereby highlighted text indicates the level of support for a Level 3 or a Level 4 implied task within a process element:

- GREEN is used to highlight key words or key statements that are fully supported
- YELLOW is used to highlight key words/key statements that are partially supported
- GREY is used to highlight key words/key statements that are not supported
- No highlighting is used for words/statements that are irrelevant, just for reference or needed to complete the sentence.

Manual and Automated Support

It is important to determine whether the implied task is supported by manual steps, automated steps, or a combination of both. In this document, "A", "M", or "AM" is used for each task to indicate that the step or steps is/are automated (A), manual (M), or both (AM).

TM Forum Note 1:

When process mappings are presented against Level 3 processes, such mappings are provided against the process' extended description. If an Extended Description is not defined, then the mapping is provided against the Brief Description.

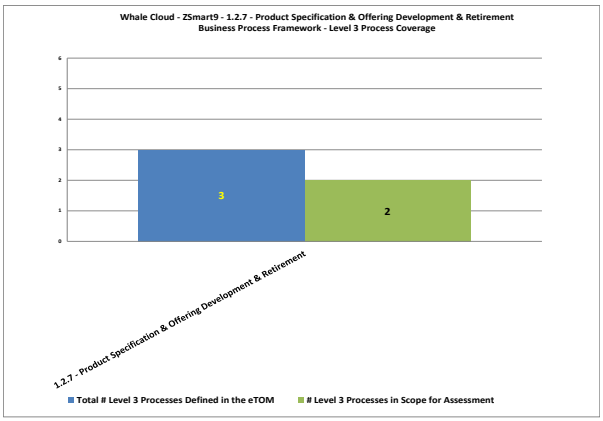
8.2 Scope of Conformance Certification – List (eTOM)

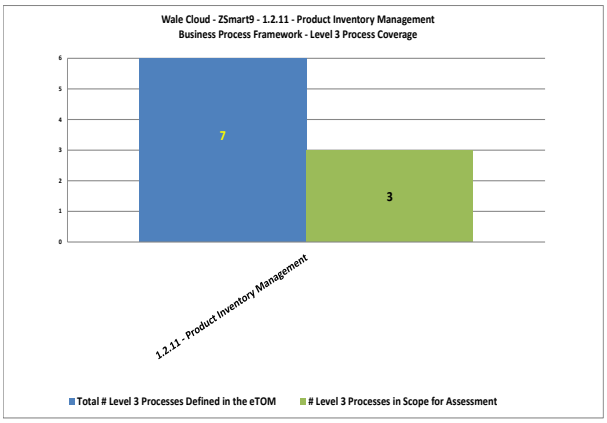
This document conveys information about the Business Processes implemented for ZSmart9 in accordance to the TM Forum Business Process Framework. It also maps the processes with the Level 2 and Level 3 frameworks' business activities. The document covers the following L2 and L3 Processes in scope for certification.

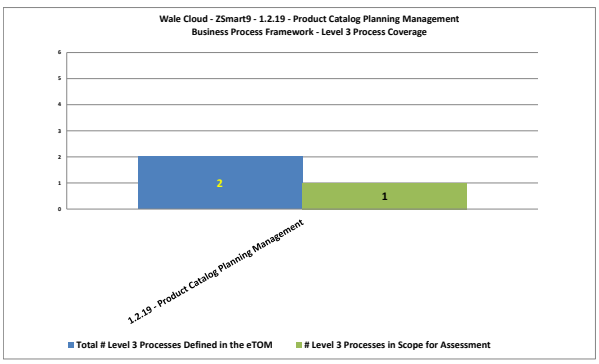
TM Forum Conformance Certification Scoping Document - Business Process Framework (eTOM) v25.0			
	Member:	*Whale Cloud Technology Ltd*	***Certification Scope for Level-3 Process Elements*** *Mark each L3 process to be included in scope with an 'X'*
	Assessment Name:	*Zsmart v9*	
	Assessment Type	*Solution*	
	Number of L3 Processes in Scope:	19	
Level 1	***Level 2***	***Level 3***	
1.2 - Product Domain			
	1.2.7 - Product Specification & Offering Development & Retirement		
		1.2.7.1 - Product Specification Development & Retirement	X
		1.2.7.2 - Product Offering Development & Retirement	X
	1.2.11 - Product Inventory Management		
		1.2.11.2 - Maintain Product Inventory facilities	X
		1.2.11.3 - Control Product Inventory Access	X
		1.2.11.5 - Track Product Inventory Usage	X
	1.2.19 - Product Catalog Planning Management		
		1.2.19.2 - Define Product Catalog Specification	X
	1.2.20 - Product Catalog Lifecycle Management		
		1.2.20.1 - Manage Product Catalog Design	X
	1.2.21 - Product Catalog Operational Readiness Management		
		1.2.21.1 - Release Product Catalog	X
	1.2.22 - Product Catalog Content Management		
		1.2.22.2 - Manage Product Catalog Access	X
	1.2.23 - Product Specification Management		
		1.2.23.4 - Update and Version Product Specifications	X
1.4 - Service Domain			
	1.4.4 - Service Support Management		
		1.4.4.1 - Manage Service Inventory	X
	1.4.13 - Service Catalog Lifecycle Management		
		1.4.13.1 - Manage Service Catalog Design	X
	1.4.14 - Service Catalog Operational Readiness Management		
		1.4.14.1 - Release Service Catalog	X
	1.4.15 - Service Catalog Content Management		
		1.4.15.2 - Manage Service Catalog Access	X
	1.4.16 - Service Catalog Planning Management		
		1.4.16.2 - Define Service Catalog Specification	X
1.5 - Resource Domain			
	1.5.4 - Resource Support Management		
		1.5.4.5 - Manage Resource Inventory	X
	1.5.15 - Resource Catalog Lifecycle Management		
		1.5.15.1 - Manage Resource Catalog Design	X
	1.5.16 - Resource Catalog Operational Readiness Management		
		1.5.16.1 - Release Resource Catalog	X
	1.5.17 - Resource Catalog Content Management		
		1.5.17.2 - Manage Resource Catalog Access	X

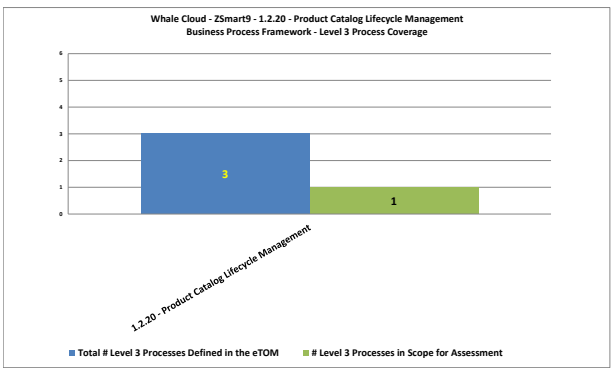
Figure 5- ZSmart9 –- Scope of certification for eTOM

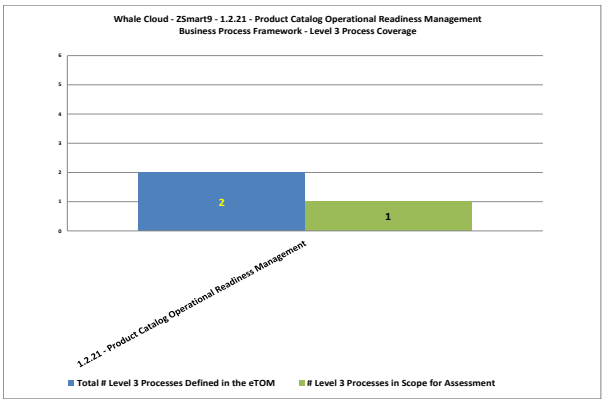
8.3 Scope of Conformance Certification – Graph (eTOM)

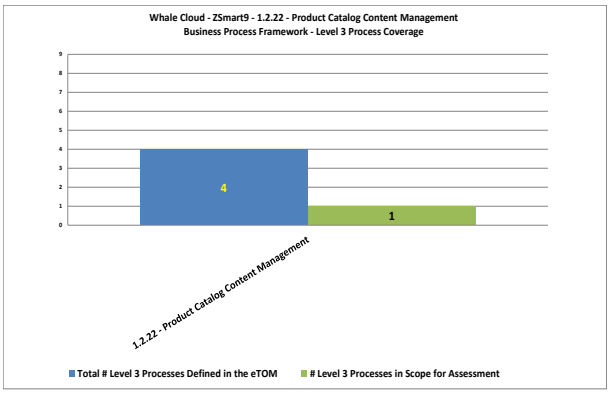


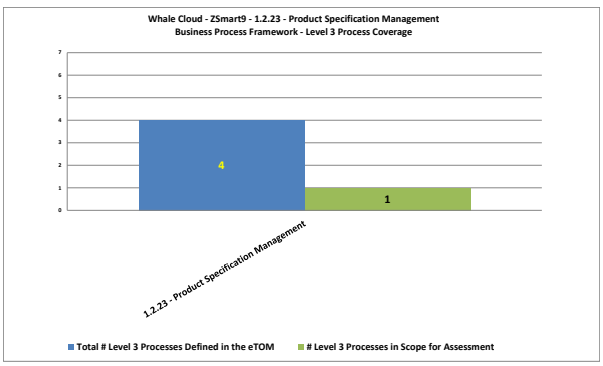


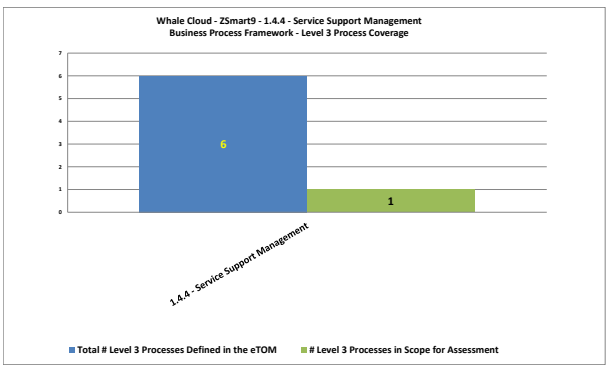


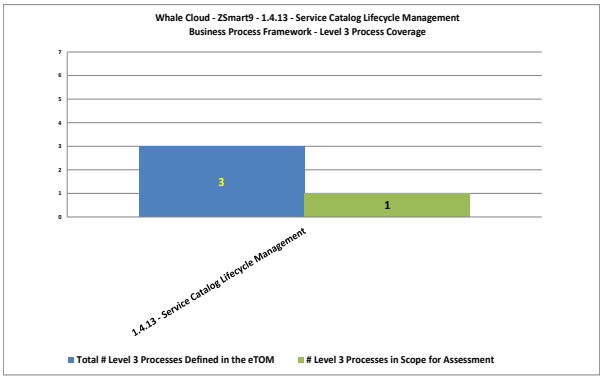


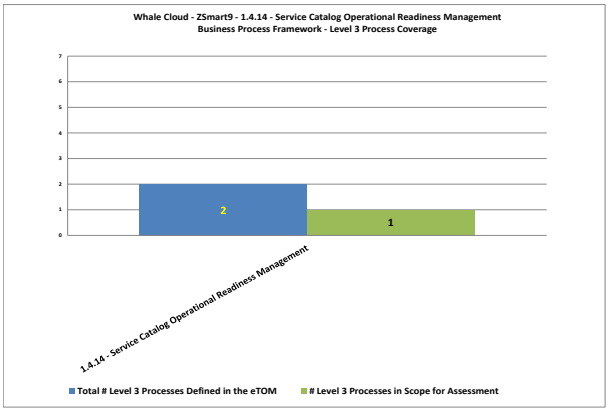


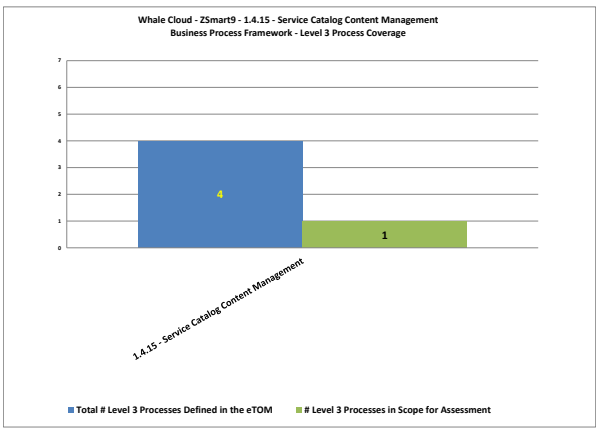


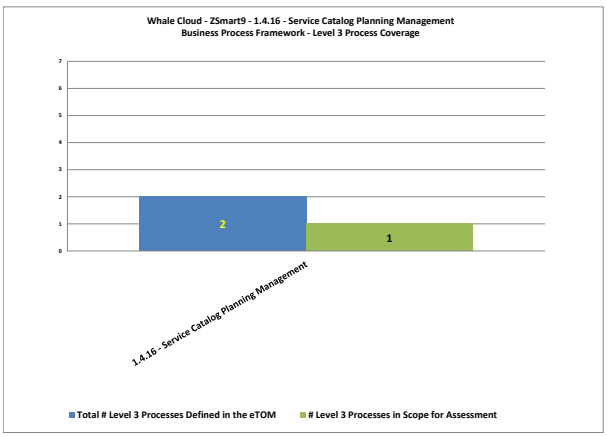


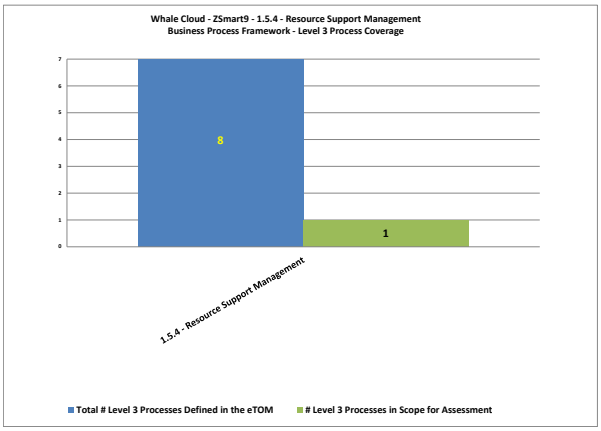


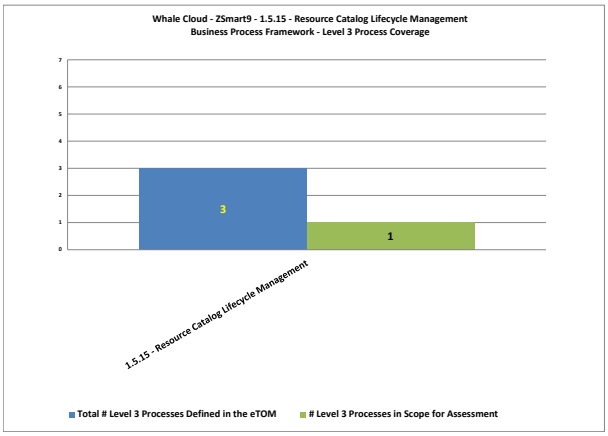












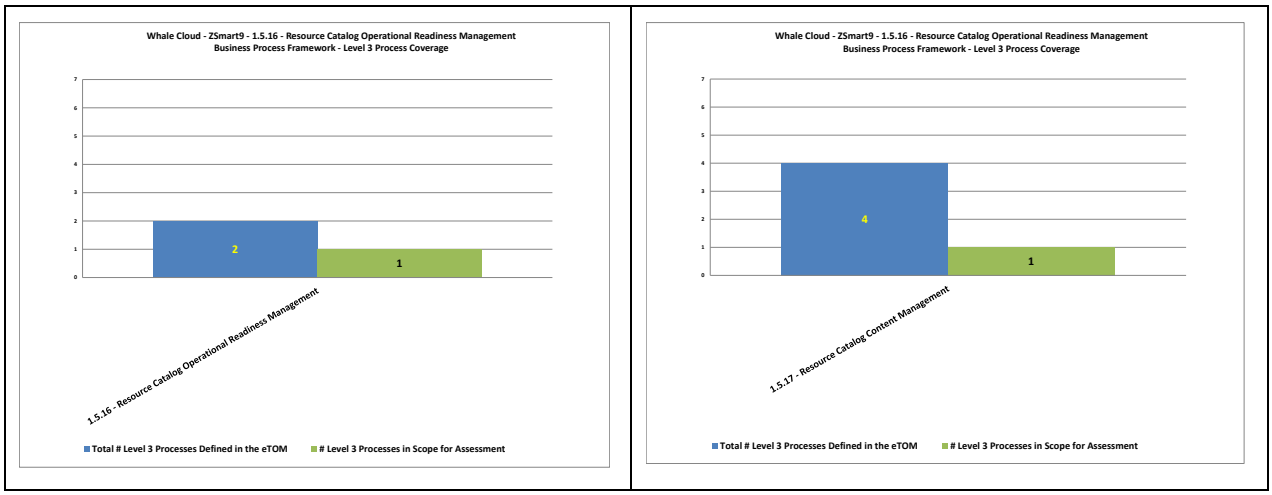


Figure 6- ZSmart9 –- Certified Processes in Scope

8.4 Business Process Framework – Scoring Guidelines

This section provides the Process Mapping output from the self-assessment carried out by TM Forum Subject Matter Experts alongside supporting documentation made available for this purpose.

Business Process Framework (eTOM) - Conformance Scoring Methodology		
Process Level	**Conformance Score**	**Qualifier**
Level 1 Process	***Not applicable***	**Conformance Assessment shall not be carried out at this process level.**
Level 2 Process	***Not applicable***	**A conformance level is not awarded to Level 2 processes in Frameworx Certification.** **The Certification Report shall highlight the coverage within a Level 2 process submitted in scope for an Assessment, in terms of number of Level 3 processes submitted for assessment out of the total number defined in the Business Process Framework for the Level 2 process.**
Level 3 Process	**Conformance Score is awarded between 3.1 & 5.0**	**The Conformance Score is awarded for each Level 3 process submitted in scope for the Assessment. The Conformance Score awarded can be a value between 3 & 5 depending on the level of coverage & conformance to the Level 3 process based on the alignment to the level 3 process definitions.** • **A score of 5 indicates that the process is fully conformant with no deviations.** • **A score of 4.5 indicates a process that is almost fully conformant, but displays some minor deviations from the standard.** • **A score of 4.0 indicates a process that is partially conformant as it displays some deviations (not severe but not minor either) from the standard.** • **A score of 3.5 indicates a process that is partially conformant as it displays major deviations from the standard.** • **A score of 3.0 indicates a process that is not conformant as it displays no alignment or conformance at all with the standard.**
**** In earlier Conformance Assessments, scores were awarded to Level 1 & Level 2 processes using values 1 through to 3. For this reason, the Level 3 scores start from > 3.***		
Note 1 - Level 1 processes shall be presented to define the assessment scope only. i.e. they shall not be assessed as self-contained processes since the level of detail is not considered sufficient. A conformance level shall not be awarded for Level 1 processes.		
Note 2 - Level 2 processes shall be presented to define the assessment scope only. i.e. they shall not be assessed as self-contained processes since the level of detail is not considered sufficient. A conformance level shall not be awarded for Level 2 processes. However, the Certification Report shall provide good indication of the coverage of the Level 2 process in terms of number of contained Level 3 processes submitted in scope for the Assessment.		
Note 3 - The Conformance Assessment shall be carried out at process level 3. For each Level 3 process, conformance shall be deduced according to the support for the process implied tasks, as decomposed and described in the underlying process descriptions. The score awarded for a Level 3 process, is deduced according to the support mapped to the Level 3 processes/Implied Tasks.		
Note 4 - In evaluating conformance to the standards, manual intervention shall not impact the conformance score granted. However, any level of manual support shall be noted in the Conformance Report and Detailed Results Report. <u>This note specifically applies to Product & Solution Assessments.</u>		
Note 5 - Processes that are supported via manual implementation <u>only</u>, are not considered in scope for the Assessment. <u>This note specifically applies to Product & Solution Assessments.</u>		

Figure 7- TM Forum Business Process Framework: Conformance Scoring Rules

8.5 Business Process Framework – Process Mapping Descriptions

This section provides the mapping of Business Process Framework against the processes supported.

The self-assessment was reviewed by TM Forum Subject Matter Experts alongside supporting documentation provided.

8.5.1 Mapping Details & Supporting Evidence

The documented mapping information for all Level 2 business processes in scope is available from the following link:

eTOM Mapping Document

8.6 Conformance Results – (eTOM)

Below is a summary list and graph which provide the scores awarded for the conformance to the Business Process Framework (eTOM).

TM Forum Conformance Certification Scoping Document - Business Process Framework (eTOM) v25.0			
		Member:	***Whale Cloud Technology Ltd***
		Assessment Name:	***Zsmart v9***
		Assessment Type	***Solution***
		Number of L3 Processes in Scope:	**0**
Level 1	***Level 2***	***Level 3***	***Certification Scores for Level-3 Process Elements***
1.2 - Product Domain			
	1.2.7 - Product Specification & Offering Development & Retirement		
		1.2.7.1 - Product Specification Development & Retirement	5/5
		1.2.7.2 - Product Offering Development & Retirement	5/5
	1.2.11 - Product Inventory Management		
		1.2.11.2 - Maintain Product Inventory facilities	5/5
		1.2.11.3 - Control Product Inventory Access	5/5
		1.2.11.5 - Track Product Inventory Usage	5/5
	1.2.19 - Product Catalog Planning Management		
		1.2.19.2 - Define Product Catalog Specification	5/5
	1.2.20 - Product Catalog Lifecycle Management		
		1.2.20.1 - Manage Product Catalog Design	5/5
	1.2.21 - Product Catalog Operational Readiness Management		
		1.2.21.1 - Release Product Catalog	5/5
	1.2.22 - Product Catalog Content Management		
		1.2.22.2 - Manage Product Catalog Access	5/5
	1.2.23 - Product Specification Management		
		1.2.23.4 - Update and Version Product Specifications	5/5
1.4 - Service Domain			
	1.4.4 - Service Support Management		
		1.4.4.1 - Manage Service Inventory	5/5
	1.4.13 - Service Catalog Lifecycle Management		
		1.4.13.1 - Manage Service Catalog Design	5/5
	1.4.14 - Service Catalog Operational Readiness Management		
		1.4.14.1 - Release Service Catalog	5/5
	1.4.15 - Service Catalog Content Management		
		1.4.15.2 - Manage Service Catalog Access	5/5
	1.4.16 - Service Catalog Planning Management		
		1.4.16.2 - Define Service Catalog Specification	5/5
1.5 - Resource Domain			
	1.5.4 - Resource Support Management		
		1.5.4.5 - Manage Resource Inventory	5/5
	1.5.15 - Resource Catalog Lifecycle Management		
		1.5.15.1 - Manage Resource Catalog Design	5/5
	1.5.16 - Resource Catalog Operational Readiness Management		
		1.5.16.1 - Release Resource Catalog	5/5
	1.5.17 - Resource Catalog Content Management		
		1.5.17.2 - Manage Resource Catalog Access	5/5

Figure 8- ZSmart9–-eTOM Scores (All scores) Awarded (List)

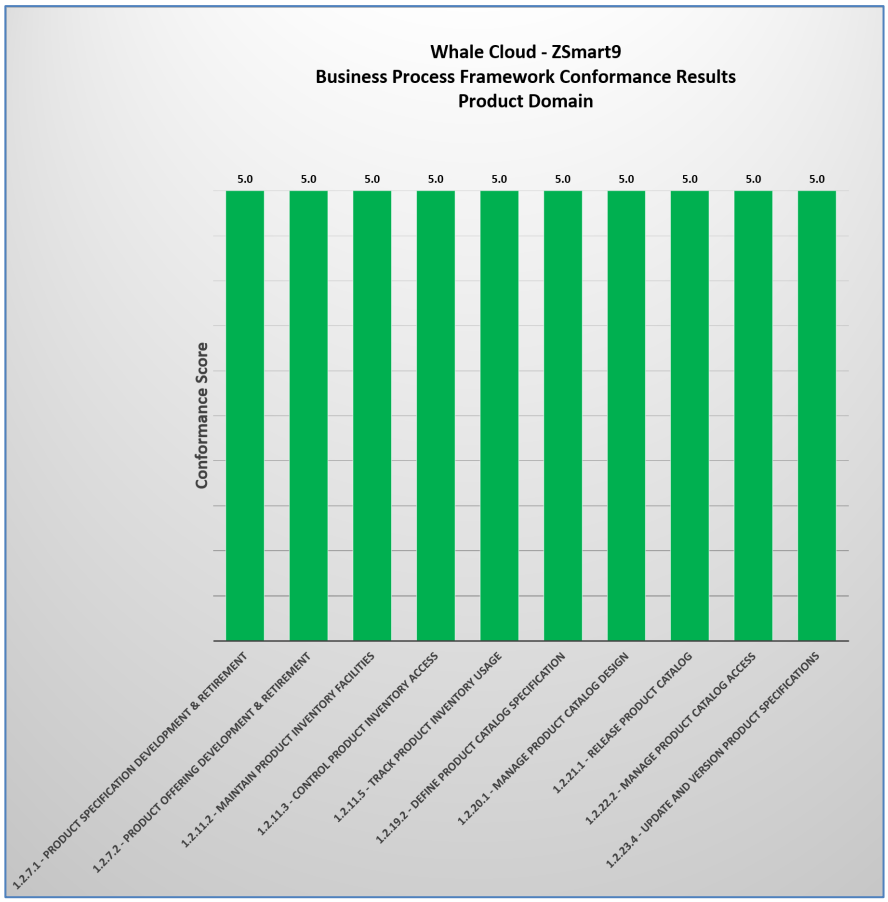


Figure 9- ZSmart9–-eTOM Scores (Product Domain) Awarded (Chart)

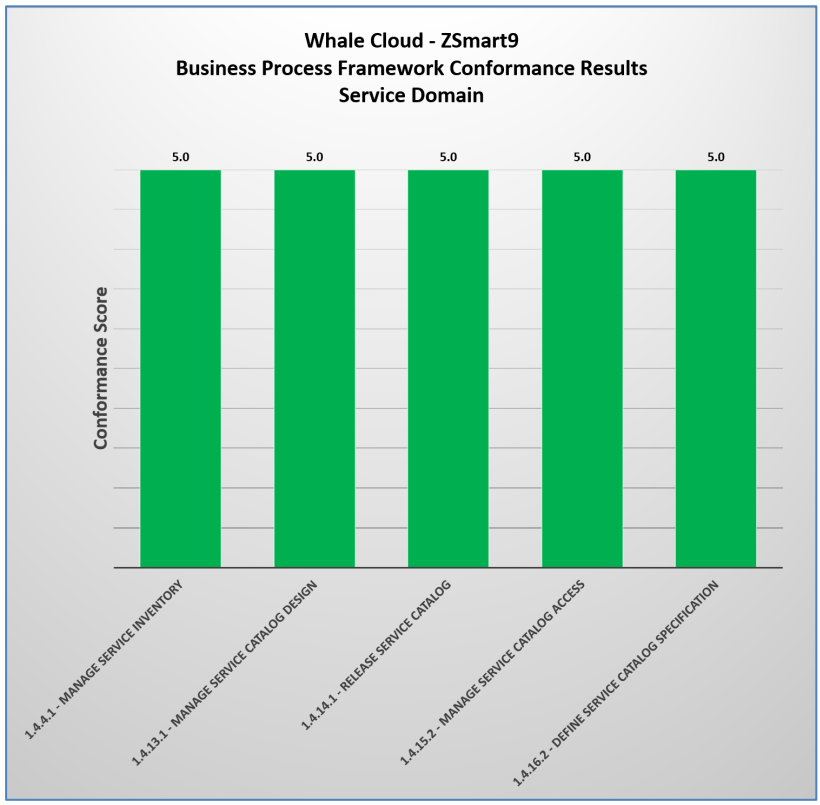


Figure 10- ZSmart9–-eTOM Scores (Service Domain) Awarded (Chart)

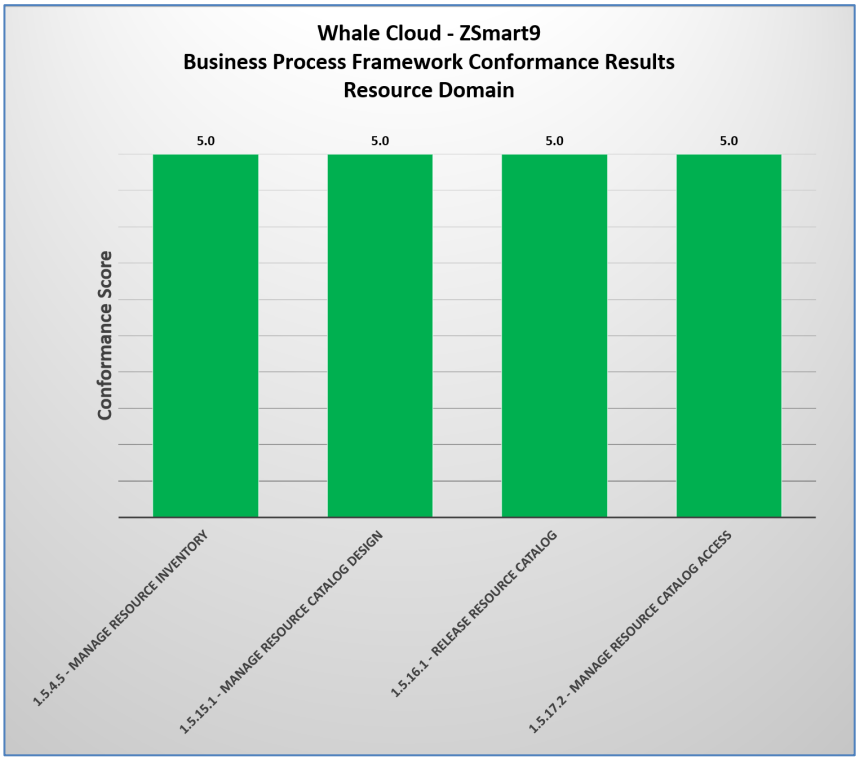


Figure 11- ZSmart9–-eTOM Scores (Resource Domain) Awarded (Chart)

9 Information Framework Assessment Overview

9.1 Mapping Technique Employed

The certification scope defines the list of Information Framework (SID) ABEs (Aggregate Business Entities) for which mapping support is reviewed during the assessment. For each of the ABEs defined in scope for the assessment, the organization undergoing the assessment must map their information model to the core entities and dependent entities and the required and optional attributes for each entity, as defined in the SID model, according to what is supported for the product/solution under assessment.

9.2 Scope of Conformance Certification (SID)

TM Forum Conformance Certification Scoping Document Information Framework (SID) v25.0	
Member:	***Whale Cloud Technology Ltd***
Assessment Name:	***Zsmart v9***
Assessment Type:	***Solution***
ABEs in Scope:	**5**
Product Domain	
Product Configuration ABE	
Service Domain	
Service ABE **Service Configuration ABE**	
Resource Domain	
Resource Configuration ABE **Resource ABE**	

Figure 12 - ZSmart9–SID ABEs Certification Scope (List)

9.3 Detailed Conformance Mapping Summary (SID)

9.3.1 Product Domain

The data in these columns is extracted from the SID Release 25.0 Information Model						For use during Self-Assessments by Organisation undergoing ODA Conformance Certification	
Predefined SID Model Data - Please do not modify data in these columns - For TM Forum use only						For Member Use - Mandatory Mapping	
ABE name	Entity name	Attribute name	Attribute origin	Item Type	Conformance Result	Member Mapping: ENTITY	Member Mapping: ATTRIBUTE
Product ABE				ABE	Y		
Product ABE	AtomicProduct			CE	Y	AtomicProduct	
Product ABE		*status*	Product	CR	Y	ProductSpecification	lifecycleStatus
Product ABE		*validFor*	Product	CR	Y	ProductSpecification	validFor
Product ABE		*description*	RootEntity	CR	Y	ProductSpecification	description
Product ABE		*ID*	RootEntity	CO	Y	ProductSpecification	id
Product ABE		*name*	RootEntity	CO	Y	ProductSpecification	name
Product ABE	CompositeProduct			CE	Y		
Product ABE		*status*	Product	CR	Y	ProductSpecification	lifecycleStatus
Product ABE		*validFor*	Product	CR	Y	ProductSpecification	validFor
Product ABE		*description*	RootEntity	CR	Y	ProductSpecification	description
Product ABE		*ID*	RootEntity	CO	Y	ProductSpecification	id
Product ABE		*name*	RootEntity	CO	Y	ProductSpecification	name
Product ABE	Product			CE	Y		
Product ABE		*status*	Product	CR	Y	ProductSpecification	lifecycleStatus
Product ABE		*validFor*	Product	CR	Y	ProductSpecification	validFor
Product ABE		*description*	RootEntity	CR	Y	ProductSpecification	description
Product ABE		*ID*	RootEntity	CO	Y	ProductSpecification	id
Product ABE		*name*	RootEntity	CO	Y	ProductSpecification	name
Product ABE	ProductCharacteristicValue			DE	Y	ProductCharacteristicValue	
Product ABE		*validFor*	CharacteristicValue	DO	Y	ProductSpecification	validFor
Product ABE		*value*	CharacteristicValue	DO	Y	ProductSpecification	value
Product ABE	ProductPlaceRole			DE	Y		
Product ABE		*placeRole*	ProductPlaceRole	DO	Y	ProductSpecification	placeRole
Product ABE		*validFor*	ProductPlaceRole	DO	Y	ProductSpecification	validFor
Product ABE	ProductRelationship			DE	Y		
Product ABE		*type*	ProductRelationship	DO	Y	ProductSpecification	relationType
Product ABE		*validFor*	ProductRelationship	DO	Y	ProductSpecification	validFor
Product Configuration ABE				ABE	Y		
Product Configuration ABE	ProductConfigSpec			DE	Y		
Product Configuration ABE	ProductConfigSpec	*description*	ConfigurationSpecification	DR	Y	ProductConfiguration	description
Product Configuration ABE	ProductConfigSpec	*ID*	ConfigurationSpecification	DR	Y	ProductConfiguration	ID
Product Configuration ABE	ProductConfigSpec	*name*	ConfigurationSpecification	DR	Y	ProductConfiguration	name
Product Configuration ABE	ProductConfigSpec	*validFor*	ConfigurationSpecification	DR	Y	ProductConfiguration	validFor
Product Configuration ABE	ProductConfigSpec	*version*	ConfigurationSpecification	DR	Y	ProductConfiguration	version
Product Configuration ABE	ProductConfiguration			CE	Y	ProductConfiguration	
Product Configuration ABE	ProductConfiguration	*dateCreated*	Configuration	CR	Y	ProductConfiguration	dateCreated
Product Configuration ABE	ProductConfiguration	*description*	Configuration	CR	Y	ProductConfiguration	description
Product Configuration ABE	ProductConfiguration	*validFor*	Configuration	CR	Y	ProductConfiguration	validFor
Product Configuration ABE	ProductConfiguration	*version*	Configuration	CR	Y	ProductConfiguration	version

Figure 13 - ZSmart9– SID mappings – Product Domain

9.3.1 Service Domain

The data in these columns is extracted from the SID Release 25.0 Information Model						For use during Self-Assessments by Organisation undergoing ODA Conformance Certification	
Predefined SID Model Data - Please do not modify data in these columns - For TM Forum use only						For Member Use - Mandatory Mapping	
ABE name	Entity name	Attribute name	Attribute origin	Item Type	Conformance Result	Member Mapping: ENTITY	Member Mapping: ATTRIBUTE
Service ABE				ABE	Y		
Service ABE	AdministerServiceDetails			DE	Y		
Service ABE	AdministerServiceDetails	*ID*	*RootEntity*	DR	Y	srv_cfs	cfs_id
Service ABE	AdministerServiceDetails	*description*	*RootEntity*	DO	Y	srv_cfs	notes
Service ABE	AdministerServiceDetails	*name*	*RootEntity*	DO	Y	srv_cfs	service_no
Service ABE	OwnsServiceDetails			DE	Y	srv_cust	
Service ABE	OwnsServiceDetails	*ID*	*RootEntity*	DR	Y	srv_cust	cust_id
Service ABE	OwnsServiceDetails	*description*	*RootEntity*	DO	Y	srv_cust	notes
Service ABE	OwnsServiceDetails	*name*	*RootEntity*	DO	Y	srv_cust	cust_name
Service ABE	Service			CE	Y	srv_cfs	
Service ABE	Service	hasStarted	Service	CO	Y	srv_cfs	bill_state
Service ABE	Service	isMandatory	Service	CO	Y	srv_cfs	is_mandatory
Service ABE	Service	isServiceEnabled	Service	CR	Y	srv_cfs	cfs_state
Service ABE	Service	isStateful	Service	CO	Y	srv_cfs	is_independent
Service ABE	Service	startMode	Service	CO	Y	srv_cfs	start_mode
Service ABE	Service	*ID*	*RootEntity*	CR	Y	srv_cfs	cfs_id
Service ABE	Service	*description*	*RootEntity*	CO	Y	srv_cfs	notes
Service ABE	Service	*name*	*RootEntity*	CO	Y	srv_cfs	service_no
Service ABE	ServiceCharacteristicValue			DE	Y	srv_cfs_attr	
Service ABE	ServiceCharacteristicValue	validFor	*CharacteristicValue*	DO	Y	srv_cfs_attr	eff_date
Service ABE	ServiceCharacteristicValue	value	*CharacteristicValue*	DO	Y	srv_cfs_attr	attr_value
Service ABE	ServicePlaceDetails			DE	Y	srv_cfs_ct_main	
Service ABE	ServicePlaceDetails	installedTimeStamp	ServicePlaceDetails	DO	Y	srv_cfs_ct_main	rfs_date
Service ABE	ServicePlaceDetails	isLocatedAt	ServicePlaceDetails	DR	Y	srv_cfs_ct_main	address_id
Service ABE	ServicePlaceDetails	toBeInstalledTimeStamp	ServicePlaceDetails	DO	Y	srv_cfs_ct_main	inservice_date
Service ABE	ServicePlaceDetails	toBeLocatedAt	ServicePlaceDetails	DO	Y	srv_cfs_ct_main	address_desc
Service ABE	ServiceRelationship			DE	Y	srv_cfs_cfs	
Service ABE	ServiceRelationship	type	ServiceRelationship	DO	Y	srv_cfs_cfs	rela_type
Service ABE	ServiceRelationship	validFor	ServiceRelationship	DO	Y	srv_cfs_cfs	eff_date
Service ABE	ServiceRole			DE	Y	srv_cfs	
Service ABE	ServiceRole	*roleCombination*	*Role*	DO	Y	srv_cfs	role_code
Service ABE	ServiceRole	*roleSelectionMethod*	*Role*	DO	Y	Pub_role	expr
Service ABE	ServiceRole	*ID*	*RootEntity*	DR	Y	srv_cfs	cfs_id
Service ABE	ServiceRole	*description*	*RootEntity*	DO	Y	srv_cfs	notes
Service ABE	ServiceRole	*name*	*RootEntity*	DO	Y	srv_cfs	service_no
Service Configuration ABE				ABE	Y		
Service Configuration ABE	ServiceConfigSpec			DE	Y	srv_cfs	
Service Configuration ABE		*description*	ConfigurationSpecification	DR	Y	srv_cfs	notes
Service Configuration ABE		*ID*	ConfigurationSpecification	DR	Y	srv_cfs	service_id
Service Configuration ABE		*name*	ConfigurationSpecification	DR	Y	srv_cfs	service_no
Service Configuration ABE		*validFor*	ConfigurationSpecification	DR	Y	srv_cfs	eff_date
Service Configuration ABE		*version*	ConfigurationSpecification	DR	Y	srv_cfs	version_number
Service Configuration ABE	ServiceConfiguration			CE	Y	srv_cfs	
Service Configuration ABE		*dateCreated*	Configuration	CR	Y	srv_cfs	dateCreated
Service Configuration ABE		*description*	Configuration	CR	Y	srv_cfs	notes
Service Configuration ABE		*validFor*	Configuration	CR	Y	srv_cfs	eff_date
Service Configuration ABE		*version*	Configuration	CR	Y	srv_cfs	version_number

Figure 14 - ZSmart9– SID mappings – Service Domain

9.3.2 Resource Domain

The data in these columns is extracted from the SID Release 25.0 Information Model					Conformance Result	For use during Self-Assessments by Organisation undergoing ODA Conformance Certification	
Predefined SID Model Data - Please do not modify data in these columns - For TM Forum use only						For Client Use - Mandatory Mapping	
ABE name	Entity name	Attribute name	Attribute origin	Item Type		Member Mapping: ENTITY	Member Mapping: ATTRIBUTE
Resource ABE				ABE	Y		
Resource ABE	AdministerResourceDetails			DE	Y	pub_admin_object	
Resource ABE	AdministerResourceDetails	*ID*	RootEntity	DR	Y	pub_admin_object	role_id
Resource ABE	AdministerResourceDetails	*description*	RootEntity	DO	Y	pub_admin_object	description
Resource ABE	AdministerResourceDetails	*name*	RootEntity	DR	Y	pub_admin_object	name
Resource ABE	OwnsResourceDetails			DE	Y	pub_sub_object	
Resource ABE	OwnsResourceDetails	*ID*	RootEntity	DR	Y	pub_sub_object	r_id
Resource ABE	OwnsResourceDetails	*description*	RootEntity	DO	Y	pub_sub_object	description
Resource ABE	OwnsResourceDetails	*name*	RootEntity	DR	Y	pub_sub_object	name
Resource ABE	Resource			CE	Y	pub_res_object	
Resource ABE	Resource	usageState	Resource	CO	Y	pub_res_object	opr_state_id
Resource ABE	Resource	*ID*	RootEntity	CR	Y	pub_res_object	id
Resource ABE	Resource	*description*	RootEntity	CO	Y	pub_res_object	description
Resource ABE	Resource	*name*	RootEntity	CR	Y	pub_res_object	name
Resource ABE	ResourceCharacteristicValue			DE	Y	pub_object_attr_value	
Resource ABE	ResourceCharacteristicValue	validFor	CharacteristicValue	DO	Y	pub_object_attr_value	expire_date
Resource ABE	ResourceCharacteristicValue	value	CharacteristicValue	DO	Y	pub_object_attr_value	value
Resource ABE	ResourceRelationship			DE	Y	pub_object_rela	
Resource ABE	ResourceRelationship	type	ResourceRelationship	DO	Y	pub_object_rela	relation_type
Resource ABE	ResourceRelationship	validFor	ResourceRelationship	DO	Y	pub_object_rela	expire_date
Resource ABE	ResourceRole			DE	Y	pub_object_role	
Resource ABE	ResourceRole	*roleCombination*	Role	DO	Y	pub_object_role	role_string
Resource ABE	ResourceRole	*roleSelectionMethod*	Role	DO	Y	pub_object_role	query_method
Resource ABE	ResourceRole	*ID*	RootEntity	DR	Y	pub_object_role	r_id
Resource ABE	ResourceRole	*description*	RootEntity	DO	Y	pub_object_role	description
Resource ABE	ResourceRole	*name*	RootEntity	DR	Y	pub_object_role	name
Resource Configuration ABE				ABE	Y		
Resource Configuration ABE	ResourceConfigSpec			DE	Y	pub_res_config	
Resource Configuration ABE		*description*	ConfigurationSpecification	DR	Y	pub_res_config	description
Resource Configuration ABE		*ID*	ConfigurationSpecification	DR	Y	pub_res_config	r_id
Resource Configuration ABE		*name*	ConfigurationSpecification	DR	Y	pub_res_config	name
Resource Configuration ABE		*validFor*	ConfigurationSpecification	DR	Y	pub_res_config	expire_date
Resource Configuration ABE		*version*	ConfigurationSpecification	DR	Y	pub_res_config	version
Resource Configuration ABE	ResourceConfiguration			CE	Y	pub_res_config	
Resource Configuration ABE		*dateCreated*	Configuration	CR	N	pub_res_config	create_date
Resource Configuration ABE		*description*	Configuration	CR	Y	pub_res_config	description
Resource Configuration ABE		*validFor*	Configuration	CR	Y	pub_res_config	expire_date
Resource Configuration ABE		*version*	Configuration	CR	Y	pub_res_config	version

Figure 15 - ZSmart9– SID mappings – Resource Domain

9.4 Information Framework Conformance Results (List)

ABE name	ABE Conformance Score Adoption
Product ABE	Full Conformance [Score = 10.0]
Product Configuration ABE	Full Conformance [Score = 10.0]
Service ABE	Full Conformance [Score = 10.0]
Service Configuration ABE	Full Conformance [Score = 10.0]
Resource ABE	Full Conformance [Score = 10.0]
Resource Configuration ABE	Very High Conformance [Score = 9.5]

Figure 16 - ZSmart9–SID ABEs Certification Scores Achieved (List)

9.5 Information Framework Conformance Results (Graph)

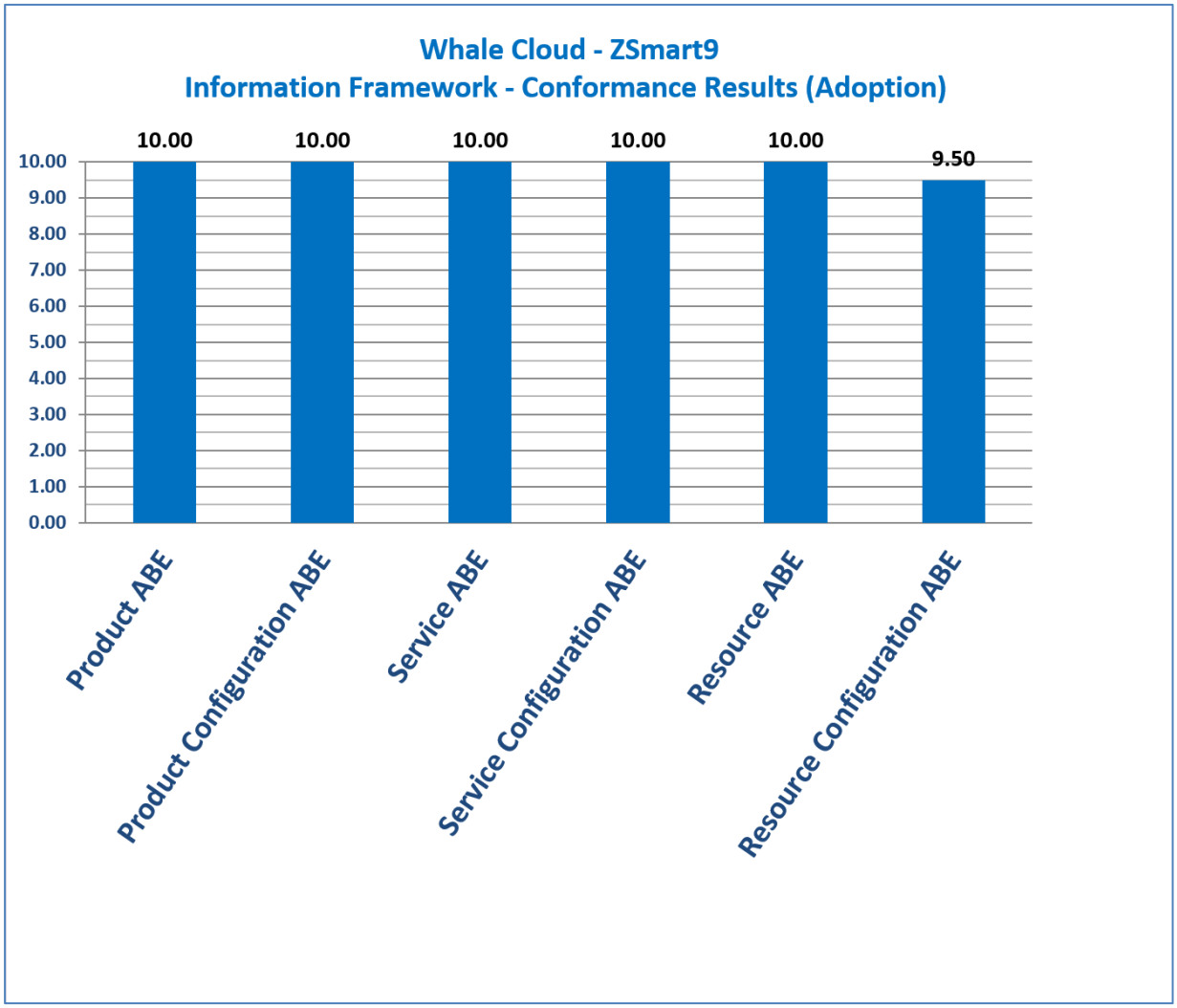


Figure 17 - ZSmart9–SID ABEs Certification Scores Achieved (Graph)

9.5.1 Information Framework – Scoring Rules

Between 2013 (Frameworx 14.0) and the end of 2017, TM Forum applied a combined scoring method SEsed on two different categories of conformance scoring:

1. Information Framework Maturity
2. Information Framework Adoption

Starting on the 1st of January 2018, only one method has been retained instead of these two scoring methods (Maturity + Adoption). The use of two different methods made interpretation and understanding difficult and ambiguous for many of our members, on the ground of such experience, the TM Forum decided to keep only the "Adoption" scoring method and discard the "Maturity" scoring method.

Adoption scoring ensures a good balance between qualitative and quantitative criteria on SID conformance criteria. The adoption scoring method consists of a range of scores from 1 to 10 which makes it intuitive and fair, it is also based on weighted criteria e.g. core element, dependent, required, optional, etc.

9.5.2 Information Framework Adoption Conformance Scoring Methodology

As of Frameworx 14.0 based Conformance Assessments, to recognize the overall adoption of the Information Framework SID Information model, the Information Framework Adoption Scoring system was introduced to complement the Maturity Levels that have been used since the launch of the Frameworx Conformance Program.

Adoption conformance is based on an accumulative scoring system - i.e. scores are awarded for each element of an ABE to give an overall total Adoption score for the ABE – with elements in this context defined by core & dependent entities and required and optional attributes for both category of entity.

The scores for each element are calibrated according to relative weightings, according to the significance of each element e.g. core entity having higher weighting than dependent entities and required attributes having higher weighting than optional attributes. The relative weightings for each ABE 'element' are indicated in Table 1 - TM Forum Information Framework Adoption Conformance - Scoring Rules Table 1 below.

Information Framework - Adoption Conformance Scoring Guidelines	
SID Component	**Weighted Scoring Calculation**
Lowest Level ABE	Equivalent – 1 score point
Core Entity	Equivalent – 2 score points
Core Entity Required Attribute	% equivalent * 2 [Must support min 50% of Required Attributes]
Dependent Entity	% equivalent * 1.5
Dependent Entities – Required Attributes	% equivalent * 1.5
Core Entity – Optional Attributes	% equivalent * 1.2
Dependent Entity – Optional Attributes	% equivalent * 0.8

Adoption Conformance Score Graduation						
Non Conformance [Score = 1 to 3]	Very Low Conformance [3.0 < Score <= 4.0]	Low Conformance [4.0 < Score <= 5.0]	Medium Conformance [5.0 < Score <= 6.0]	High Conformance [6.0 < Score <= 8.0]	Very High Conformance [8.0 < Score < 10.0]	Full Conformance [Score = 10.0]

NOTES:
1. The score values for each SID component are added together to get the overall Adoption Conformance score.
2. If 50% of of the required attributes of Core entities are not supported, scores for following components are not applied as Adoption Conformance requires conformance to 50% of the required attributes of Core entities.
3. Adoption Score versus Maturity Level: Using the scoring category to recognise SID adoption, an assessed ABE for which there is equivalence to 2/3 required core attributes and 8/10 dependent entities would be awarded Maturity Level Score = 2.5 (Very Low Confomance) & Adoption Conformance score = 5.2 (Medium Conformance).

Figure 18 - TM Forum Information Framework Adoption Conformance - Scoring Rules

9.5.3 Additional Notes on Information Framework Conformance Adoption scoring:

1. For each level, according to what is required, a value is calculated based on the percentage of entities/attributes supported - as appropriate. This will result in a decimal figure (rounded to one decimal place).
2. Adoption Scoring is based on the progressive scoring schema from the former “Maturity” scoring; however, it provides additional flexibility in-so-far as it allows to score all attributes and entities in an assessed ABE. In the former “Maturity” scoring, when not all required attributes of the Core Entity were supported, the Maturity Level score would not progress to the next level, regardless of conformance to other “subordinate” components of the ABE (e.g. dependent entities, optional attributes). “Adoption” scoring fixes this constraint as it provides a weighting mechanism to score all elements supported, regardless of the absence of the core entity or/and required attributes.
3. A **core business entity** is an entity upon which other entities within the ABE are dependent. For example, Service in the Service ABE. A model should strive to attain as high a level of Information Framework (SID) conformance as possible. A core entity is also an entity whose absence in the ABE would make the ABE incomplete.
4. A **dependent entity** is one whose instances are dependent on an instance of a core entity. For example, a ServiceCharacteristic instance within the Service ABE is dependent upon an instance of the Service entity.
5. The score values for each SID component are added together to get the overall Adoption Conformance score.
6. If 50% of the required attributes of Core entities are not supported, scores for following categories are not applied as Adoption Conformance requires conformance to 50% of the required attributes of Core entities.

