

## WHAT IS COMPATIBLEONE?

### COMPATIBLEONE IN A NUTSHELL

CompatibleOne is an open source project producing a cloud-aware software platform. This platform offers a new-generation of service for cloud resources provisioning called Cloud Services Brokerage (CSB). This brokerage service is multi-tenant, available on demand, scalable, secured and measurable.

Based on open source and open standards, CompatibleOne preserves consumers from vendor lock-in and ensures they will always have freedom of choice when it comes to provision their workloads.

Complementary with other open cloud projects such as CloudStack, Eucalyptus, OpenNebula and OpenStack, in sync with their desire to make the cloud more open and more transparent, CompatibleOne makes them fully interoperable with any Cloud Management Platform including Amazon, Azure, CloudSigma, Dimension Data, Joyent, Go Grid, HPCloud, RackSpace, OnApp, Softlayer, VMware vCloud. The same interoperable principles applying to the PaaS

layer, CompatibleOne enables the provisioning of applications on open cloud PaaS such as CloudFoundry and OpenShift.

The CompatibleOne Platform manages all sorts of APIs and exposes them in a uniform and secured fashion thanks to the CompatibleOne Model and the OGF OCCl (Open Cloud Computing Interface) open standard. This enables operators to manage and enhance the

operations of the platform itself according to their needs. This allows developers to build the most appropriate user interfaces according to their business cases.

Thus CompatibleOne opens a wide range of opportunities to developers, DevOps, CIOs, system integrators, software

vendors, telecommunication operators and cloud providers who are keen to develop innovative cloud services from hybrid cloud to IT as a Service, from federation of clouds to trusted pools of resources, from federated marketplace to cloud exchange.



## YET ANOTHER CLOUD BROKER DEFINITION

The Cloud Service Broker represents a new model for the delivery of cloud services. To cut a long story short, a Cloud Service Broker is there to help customers consume any type of cloud services in an easy and controlled fashion. The mission of a broker is to be a trusted partner for their customers and to put in place all necessary means to provide the consumer with a pertinent, useful and trustworthy advice. By enabling services which facilitates the consumers' choice amongst a profusion of offers, the broker fosters the consumption of cloud services and consequently participates to the expected market growth

There is a clear distinction between a business broker and a technical broker: the business broker manages the procurement aspects of the cloud services (contracts, orders, accounting, regulatory compliance, user management, etc.) while the technical broker manages the delivery aspects of the services (provisioning, deployment, monitoring, security ...) in an automated manner. A technical broker secures the usage and the quality of the delivered services.



CompatibleOne is a technical broker enabler. CompatibleOne eliminates issues related to lack of interoperability, of portability or of reversibility. It is an enabler for the business part of the brokerage. CompatibleOne automates the exchange and trade of services thanks to its capability to standardize provisioning and SLA between

heterogeneous offers. CompatibleOne object oriented model permits the highest level of abstraction for the description of cloud services of various types and their manipulation as objects.

Here our goal is to help IT manage cloud services with a



software programming model. Using software development methodologies enables a more structured and simpler approach to managing resources in a way that facilitates maintenance and real automation. This is especially complicated when it comes to cloud run time environments where one is facing complex workloads with tons of objects in transit and in flight, where one needs to insure the security, the isolation, the SLAs, ... Without having a structured and standardized approach in managing this type of environment, it is going to be chaos. It will just be impossible to use the traditional approach in provisioning, management, patching etc. These are the reasons why we call CompatibleOne a chaos engine and why we are moving to take advantage of software development methodologies for managing IT.

This would not have been possible without the OGF open standard OCCl which specifies a simple, flexible and powerful API to manage and to discovery cloud services.

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## A TRUSTWORTHY INTERMEDIARY

CompatibleOne provides a complete view of what the consumers wants, what the consumers really consumes and what are the rationales for their choice. CompatibleOne also provides a complete view of what the chosen providers really supply. CompatibleOne can monitor in real time the automatically provisioned workloads. These workloads can be complex n-tier applications distributed on multiple cloud providers. Referring to the customer's criteria, CompatibleOne ensures that the selected providers respect the policies and SLAs in place.

When customers are trying to engage in discussions about SLAs with providers, they generally get a firm "take it or leave it" answer. Conscious of this issue and keeping in mind that it is part of the broker's mission to protect consumers' interests while dealing properly with the providers, we realised that CompatibleOne has to deal with the two sides of the SLA: the demand and the supply.

From the consumers perspective, for each workload and each service involved, CompatibleOne manages a precise description about what is required in business terms such as localization, pricing, number of instances, security rules, ... From the providers' perspective, CompatibleOne manages a detailed description of all available resources that the providers can supply, their associated pricing, quality and policies. Then the CompatibleOne Platform is able to select the provider which offers the required resources that are best corresponding to the conditions established by the customer. Thus the platform will provision the workloads and start the services in compliance with the customer's defined criteria. Once the workloads have been provisioned and services started, the monitoring mechanisms of the CompatibleOne Platform allow detection of infringement of the SLA associated to the contract that has been set up between the customer and the provider. This control is performed in real time and provides the customer with all necessary information about the quality of the services delivered by the provider. Alarms can be set in order to automatically react in case of anomalies according to predefined scenarios depending on the customer's business case.

All this would not have been feasible without the OGF open standard WS-Agreement which enables to define and reconcile the business criteria required by the consumers and the providers' offerings: WS-Agreement is flexible and can help to manage any type of business requirements from price to security and to manage any type of metrics.

This way, in a complete transparent and cloud-agnostic fashion, without having to interfere with any provider, CompatibleOne



offers to customers the tools and services to properly negotiate their contracts and to veil at their proper execution.

With CompatibleOne the intermediation is trustworthy. CompatibleOne offers a comprehensive and secured platform from provisioning to audit trail, from SLA management to monitoring. This would not be possible without open standards such as OCCI and WS-Agreement which helps to guarantee true interoperability. This would not be possible without open source which helps to ensure the compliant behavior of the platform. Open source and Cloud Service Brokers have two specificities in common: both are challenging the established industry and they are both user-centric. Some industry players have built the cloud infrastructure and we must thank them for that. Now consumers have to demonstrate the usefulness of such an

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environment. As innovation emerges from the dialogue between producers and users, open source and open standards bring key advantages to this open innovation process by enabling the discovery of new usages of cloud computing without barrier to

entry. They are providing a reliable methodology and efficient protocols to enable new-generation platforms, such as CompatibleOne, to be provided as a commodity for the benefit of the whole society.

## A CONSUMER-CENTRIC APPROACH

Here we must step back one year to the time when we discussed with Mr. Cox, director of Cloud Strategy at Intel Corp. During the conversation, it was obvious to him that CompatibleOne is on the user side of the cloud food chain while Intel is on the provider.

This has been a true revelation for us because it perfectly positions the fundamental nature of our work around the intermediation, SLA, monitoring, etc. in a very brief and consistent manner. Actually this also validated our open strategy for which the user is at the center of the process.

That day, the consumer-centric approach became a driving

force for all our future developments. CompatibleOne is now growing and innovating thanks to users' inputs. Not only are we designing a breakthrough technology but we are building this platform with a deliberate customer-driven model.

Thus CompatibleOne is a cloud service brokerage enabler for business that cares about the satisfaction of end-users' demand e.g. managed services providers that evolve into CSB, software vendors, system integrators, IT directors and DevOps.



## MAKE THE CLOUD MORE TRANSPARENT

The reason CompatibleOne is distributed under an open source license (Apache v2.0) is pragmatic.

CompatibleOne has been designed to guarantee freedom of choice to the consumer and to protect them against vendor lock-in. While it may be natural for cloud service providers to manage customer ownership with vendor lock-in, it looks like non-sense for cloud brokers: one cannot imagine that the broker itself could become a lock-in. Cloud brokers have to be agnostic, transparent and secured. Hence it is common sense to distribute freely under an open source license the source code of the software offering technical brokerage capabilities in order for people to be able to verify that there is no facetious code which would bias the negotiation of services.



Finally we want to foster the adoption of CompatibleOne by operators of brokerage services, of federation of clouds, of federated market places or cloud exchanges in a way that is convenient for their own business and compliant with their specific rules and regulations. Thanks to the availability of the CompatibleOne source code and to the flexibility of the platform, such organizations are able to freely customize the platform accordingly to their needs and to their business model. The service oriented architecture of the CompatibleOne Platform allows them to seamlessly integrate the key features they need to run their business without taking the risk to damage the trustworthiness of the core platform. From day one, the CompatibleOne Platform has been designed to be open, flexible and versatile in order to foster the implementation of any type of business case and the creation of innovative services adding

value to the platform.

## NEXT STOP: COMPUTING AS A UTILITY SERVICE

Computing delivered as a public utility service is no longer a dream. As mentioned recently by Adam Dodds, research manager for IT Services at IDC<sup>1</sup>, the Cloud Service Broker represents a first step towards this goal and projects such as CompatibleOne can be a key enabler on this path.

This future starts today: just look at the emergence of cloud marketplaces and watch the first experimentations of cloud exchange. In a world of clouds, interoperability and independence are synonyms of progress.

While there are still open questions about the way the markets will trade cloud services, lots of people are working on these perspectives from diverse points of view: technical, financial and social. CompatibleOne offers to all those interested by this noble cause an open innovation platform to entice ideas to flourish freely. CompatibleOne offers an open innovation platform to everyone interested by this noble cause.

Let's fly above the clouds with CompatibleOne & Co.

## THE ECOSYSTEM

The following contributors are participating to the CompatibleOne ecosystem:



<sup>1</sup> "Utility Computing — Are We Almost There Yet?" Sep 2013, IDC, Doc # NZ2578507V