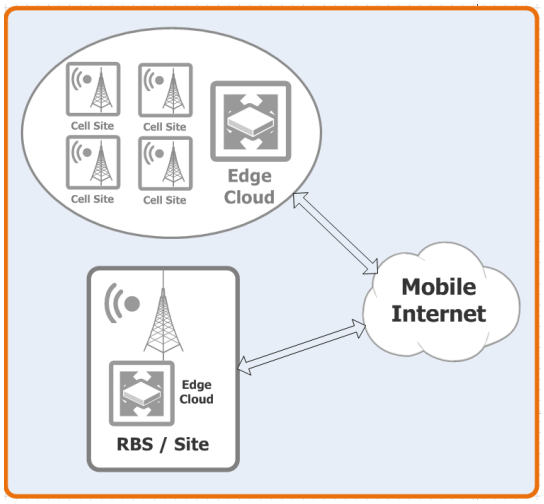
Edge cloud / distributed cloud, in the Telco context

Mobile-edge Computing provides capabilities to run workloads / applications within the Radio Access Network (RAN) in close proximity to mobile subscribers.
The key element of Mobile-edge Computing is the NFVI / hosting infrastructure providing support for the application VNFs, with computing resources, storage capacity and connectivity.

- This NFVI can support a single RBS or a cluster of RBS.
- I may contain an application layer providing radio specific information (geo location etc) to the applications, as the MEC server defined by ETSI.
- It may be implemented in existing node types providing a local cloud infrastructure outside the ETSI MEC scope.

Regardless of the edge cloud solution, the common element is the NFVI / hosting infrastructure providing computing resources, storage capacity and connectivity to the application VNFs.



The edge cloud NFVI can be seen as a small cloud instance where capacity is limited to what can be delivered by the compute, storage and network resources contained in the physical unit.
As VMs providing the application functionality are sharing the resources of the platform, the application behavior becomes less deterministic than for a solution with reserved resources.
This means that monitoring is even more important in a virtualized edge cloud / distributed cloud environment to ensure the performance of the applications / services.

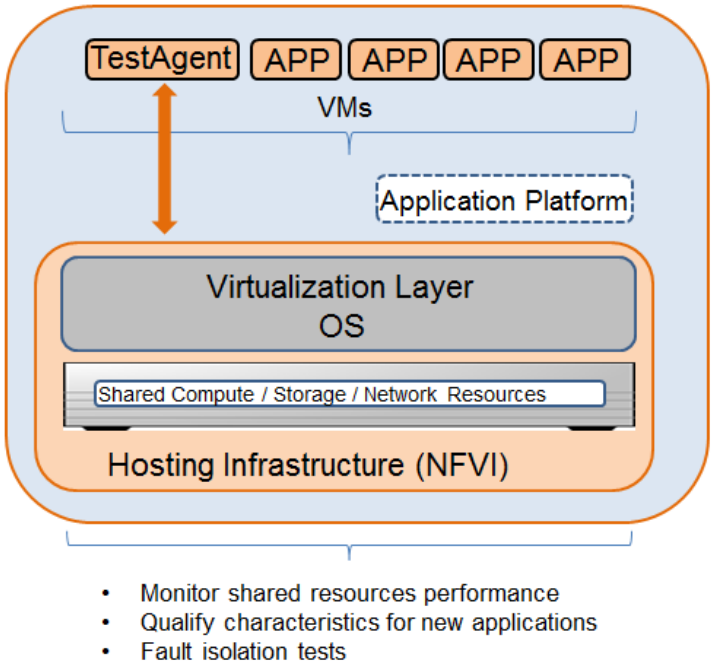
The cloudmon 360 system for Mobile Edge Computing

Mobile-edge Computing introduces three new management layers:

- The hosting infrastructure,
- The mobile user specific information supporting the applications (for instance, the MEC application layer defined by ETSI).
- The software applications and services that are hosted on the platform.

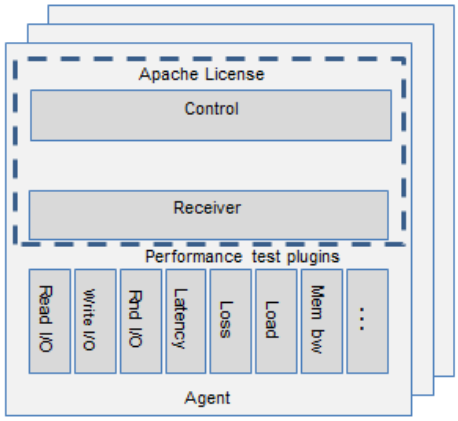
The flexibility that virtualization and cloud technologies bring to Mobile-edge Computing enables different deployment scenarios where various organizations can be responsible for management at each level (e.g. the mobile operator manages the infrastructure and application platform layers while a third-party manages the application). The Grideye system will ensure the hosting infrastructure, the NFVI, deliver the proper performance to support the compute, storage and network characteristics requirements for the applications.

- **Operations / Monitoring**: Monitoring the hosting (NFVI) infrastructure assuring the characteristics required from the applications.
- **Operations / Pre-qualification**: Pre-qualify the capacity before a new application is started by simulating the behavior of the new application.
- **Avoid vendor lock-in**: Monitoring of business services and the potentially large number of devices and services provided by IoT devices.
- **Vendor Selection / Procurement**: Perform comparative benchmarking with different workloads and traffic models to assess CPE Solutions.



CloudMon360

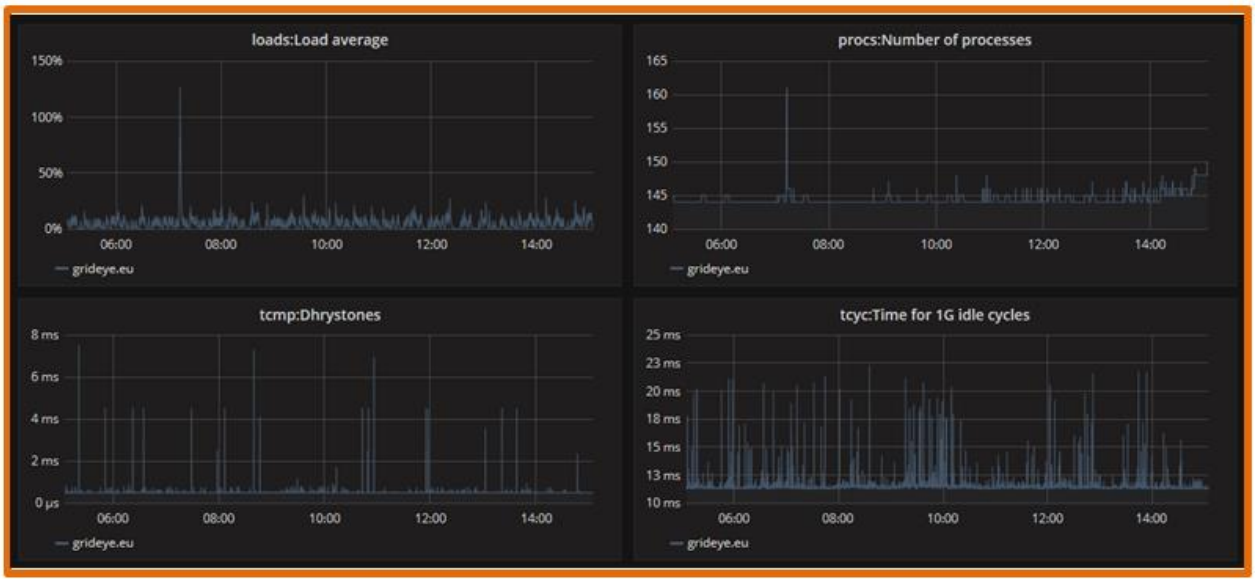
The CloudMon360 system is composed of two main parts, the agent and the controller.



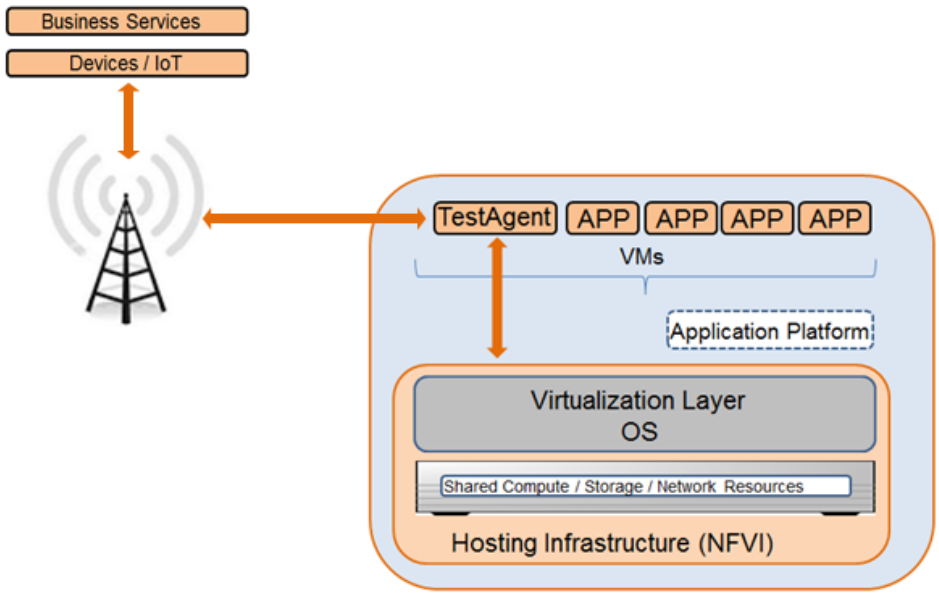
The agent VM is installed in the cloud platform to perform it's platform monitoring task.
Each agent holds a number of test plug-ins. Each test plug in performs a specific test (IO read / write, Storage, Web look up, TWAMP etc).

The back end or controller component of the CloudMon360 system handles the tasks of configuring, storing and exporting performance metrics. Integration with external orchestration systems is supported by an interactive CLI, Netconf / Yang over SSH and Rest API.

The solution provides a number of ready to go test plug-ins with comprehensive coverage of the hosting infrastructure (NFVI) compute, storage and network functionality.



There is also an opportunity for the customer to build own plug-ins as the agent is open source. This means that a specific test, be it from the Nagios library or elsewhere, can be wrapped into the framework. This open source strategy has several advantages.



- As the number of different devices and related functionality will grow exponentially, a proprietary set of tests from any given vendor will not be sufficient.
- New tests can be developed for specific needs in a simple and straight forward manner by example of the existing test plug-ins.
- The CloudMon360 customer is not tied to a specific vendor (with related resource and price level constraints) for expanding the system or future proofing existing installations.

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