

THE CLOUD AGE WHAT'S GOOD IN GCP AND VCF



Amal D. Nair

Inside Sales Engineer
Commvault

Anirudh Sandur

Associate Systems Engineer I
Dell Technologies



The Dell Technologies Proven Professional Certification program validates a wide range of skills and competencies across multiple technologies and products.

From Associate, entry-level courses to Expert-level, experience-based exams, all professionals in or looking to begin a career in IT benefit from industry-leading training and certification paths from one of the world's most trusted technology partners.

Proven Professional certifications include:

- Cloud
- Converged and Hyperconverged Infrastructure
- Data Protection
- Data Science
- Networking
- Security
- Servers
- Storage

Courses are offered to meet different learning styles and schedules, including self-paced On Demand, remote-based Virtual Instructor-Led and in-person classrooms.

Whether you are an experienced IT professional or just getting started, Dell Technologies Proven Professional certifications are designed to clearly signal proficiency to colleagues and employers. Learn more at www.dell.com/certification

Contents

- Abstract..... 4
- Executive Summary..... 5
- 1. Introduction 5
- 2. Background 5
 - 2.1 Introduction to Google Cloud Platform 5
 - 2.2 Google Cloud Products..... 6
 - 2.3 What’s the big deal about using GCP? 7
- 3. The Google Console 7
 - 3.1 Google Console Features 8
- 4. VMware’s VCF on VxRail 9
 - 4.1 The VCF on VxRail Solution 9
 - 4.2 Benefits of VCF on VxRail 10
- 5. Google Cloud Platform on VxRail 11
- 6. Conclusion..... 12
- 7. References 13

Abstract

Cloud Computing, usually called as or buzzed about as Cloud is something that is not at all new to the ears of every technical individual. The Cloud Computing usually involves multiple elements that are networked together as a group but can be leveraged individually without the necessity of being individually addressed or managed by the users. There are various vendors of Cloud facilities in the market currently, one of them being the Google Cloud Platform or sometimes referred as GCP.

What makes the Google Cloud is a collection of physical assets such as computers, hard disks or so on along with the virtual resources such as virtual machines (VMs) that are at a Google's data center across the world. The Google cloud platform has numerous benefits with respect to its ease of use as well as the availability with redundancy in case of failure and reduced latency by locating resources closer to clients.

In this whitepaper we will be discussing various benefits the Google Cloud Platform brings to the table. We will also be discussing more in detail about the various services available and how to leverage the privileges with ease of few clicks. We will be discussing in detail about the console, the best practices, the procedure in this whitepaper.

This paper also talks in detail about how VxRail and VMware's joint venture of VMware Cloud Foundation brings various values to the customer and how the integration of VxRail Manager and SDDC manager helps the organizations simplify and automate the day 2 operations of the system.

Executive Summary

This article talks an overview about what makes Google Cloud Platform have the buzz it has in the market out there right now and what are the benefits that the users are going to have incorporated with the use of Google Cloud Platform, but before we get into the details of the GCP, lets have a look at what GCP is.

1. Introduction

Cloud Computing, usually called as or buzzed about as Cloud is something that is not at all new to the ears of every technical individual. The Cloud Computing usually involves multiple elements that are networked together as a group but can be leveraged individually without the necessity of being individually addressed or managed by the users. There are various vendors of Cloud facilities in the market currently, one of them being the Google Cloud Platform or sometimes referred as GCP.

Opting for a cloud solution is for sure a fast track to have your organization be more digitally transformed, may it be your workforce or the Infrastructure. The organization's IT becomes more consultative than the operative model it used to be, also it opens the door to have more innovation and developments in mobile applications which in turn addresses/increases the customer value.

2. Background

2.1 Introduction to Google Cloud Platform

Google Cloud Platform or usually referred to as GCP, is a provider of various as a service model. GCP provides Infrastructure as a Service (IaaS), Platform as a service (PaaS) and modes for serverless computing environments. It basically is a complete suite of services for your Cloud Computing services requirement. The furthermore interesting fact is that it runs on the same infrastructure that Google has been using internally for its products such as Google Search Engines, Gmail, Google Drive, or even YouTube.

Taking a closer look, we get to know that GCP itself is nothing but a subset/part of the Google Cloud, which includes a lot of other subdivisions as well like Google Cloud Platform Public Cloud Infrastructure, as well as the well-known Google Workspace or commonly referred to as the G Suite, also includes the APIs for advanced technology capabilities like Machine Learning and Enterprise Mapping Services and finally also enterprise versions of Android and Chrome OS.

The customers who are willing to leverage the services provided by GCP can do the same in simple steps of registering themselves by use of a credit card or bank account details. There are more than 100 products that are available for the users to leverage which can suit their business requirement and help them get a step closer to achieving their goal of improving customer satisfaction and in turn increase the organizations growth. Moreover, New customers get \$300 in free credits to start running workloads and conduct an assessment.

2.2 Google Cloud Products

Like we mentioned earlier there are more than one hundred Google Cloud Products to choose from to make the day-to-day operation more efficient, simplified and streamlined. The user is given this a-la-carte option by anticipating the needs of the user which are diverse from business to business or time to time. Among the long list of available products lets look at few Featured Google Cloud Products.

- I. **Compute Engine:** Here what it ideally is a collection of virtual Machines running in Google's data centre. The user gets the option to choose from five different types of VM requirement namely General Purpose, Ultra-high memory, Compute-intensive workload, most demanding applications & workloads. Figure 1 below shows the various options available for the user to choose from.
- II. **Cloud Storage:** Google Cloud provides through Cloud Storage an ability for users to have object storage that is secure, durable, and efficiently scalable.
- III. **Google Kubernetes Engine:** Providing the customer to have a managed environment to run their containerized applications with key benefits such as the ability to speed up development of applications without the worry of security, also helping the user leverage release channels to streamline operations and finally with the help of Google's dedicated Site Reliability Engineers (SREs) reduce the Day 2 operations. The SREs continuously monitor the user's resources and cluster.
- IV. **BigQuery:** Helping the users have the Data warehouse for increasing their business agility and improve the insights in real time and achieve those predictive analytics which will help the organization take important steps. The data insights are also available to be shared in a simplified manner.
- V. **Anthos:** Users that leverage Anthos can have a platform where they can modernize their existing applications and build new ones out of it. What Anthos does is it brings all the applications across on-prem, multiple public clouds and unified its management and of infrastructure with a Google Cloud- backed control pane so that the users can have a uniform/consistent operation. Figure 1 below can be used for better interpretation of what Anthos is.

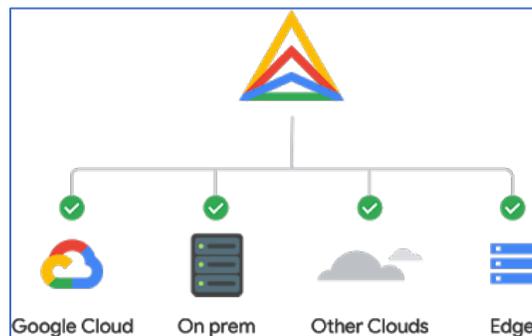


Figure 1: Representation of Anthos from Google Cloud
(Source: cloud.google.com/anthos)

And these are just 5 of the feature products that we have from the vast portfolio of 100+ products available through the Google Cloud Platform.

2.3 What's the big deal about using GCP?

Despite all the benefits that we discussed if we are to take a closer look into the definite advantages the GCP have, here are few pointers that gives a clear differentiator:

- a. **Productivity & Innovation:** GCP gives high productivity along with innovation by the Googles weekly updates with the platform and with the help of that the users see a linear increase in the productivity in their organization.
- b. **Adaptable for Users:** GCP is a very simple and intuitive platform that makes it easy to adapt. All the changes or the updates that are rolled out are small and gradual, which helps the users to adapt with the use of that time.
- c. **Accessibility:** GCP can be accessed from anywhere across the globe to completely use the data using Google's Web Applications.
- d. **Reliable:** It is considered a highly reliable option right from the start because there will be no disruptions. In the event of an issue that causes disruption, the system seamlessly shifts to a secondary data centre without any downtime.
- e. **Collaborative:** Google simplifies the collaboration part aspect by allowing simultaneous access by the users.
- f. **Complete Control:** In GCP the users have the complete power and control over the data in the Google applications. Even in an instance where the user chooses to opt-out of the services that they are leveraging through the GCP services, they can extract their data easily.

3. The Google Console

The Google Cloud Console is a very effective platform where the Compute engine that the users are leveraging offer the browser-based Google Cloud Console tool that helps the user to manager their resources with respect to the compute engine through the pictorial representation of graphical interface. The users can alternatively also prefer to use the RESTful API or the Google Cloud Command Line Interface (CLI).

The users can generate REST requests by using the Cloud Console, and while the resource is being created, Compute Engine also shows the list of all the REST request that is used to create that resource. At the same time, while using a CLI for generating commands for the command line tool it is seen that when we create a resource, the console automatically generates the equivalent command for the Google cloud CLI, which in turn is going to do the same task/action.

The Figure 2 which is trailing shows a screen snip of the Google Cloud Console, which the users would be viewing, and all the resources can be accessed and deployed by using the same. The console itself is vast field to go through and include various fields which are demoed by experts across the world.

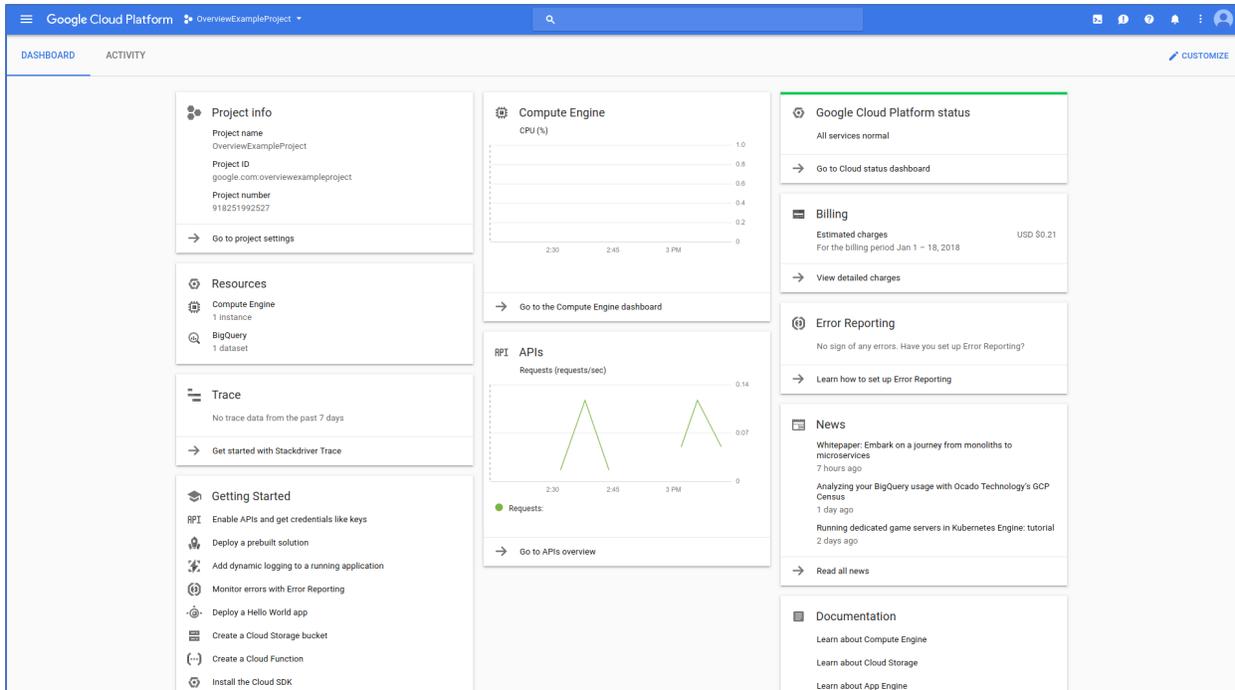


Figure 2: Screen Snip of Google Cloud Console's Overview tab.
 (Source: cloud.google.com/docs/overview)

The difference between what a Google Cloud is and what Google Cloud Platform is that Google Cloud is made up of combination of available services over the internet that will help the organization achieve the goal of going digital.

Google Cloud Platform (GCP) on the other hand provides the users the public cloud infrastructure for hosting web-based applications and is in turn a part of the Google Cloud.

3.1 Google Console Features

The some of the key feature that the Google has documented in their various documents too is what follows:

- i. The Ease of access that the console provides to the users too all their Google Cloud Platform Projects.
- ii. Provides access to the Google Cloud Shell.
- iii. Gives the user a customizable dashboard, which provides an overview of all the Google Cloud resources, billing, and the listing of filterable activity.
- iv. Easy accessibility to all Google Cloud Platform APIs, with the deployment of a dashboard specific to each API and giving the user the access to manage their own resources.
- v. Pointers to the links to all the available links to Google Cloud starting point, news, and other documentation.

4. VMware's VCF on VxRail

VMware's VCF on VxRail or the full form VMware Cloud Foundation on VxRail, goes with the tagline Built for VMware, with VMware, to enhance VMware. It got the tagline because of the sole reason that, it is the only product out there in the market right now which is a joint venture by VMware and Dell Technologies to bring out the best of both worlds. So as the tagline goes **for VMware, with VMware, to enhance VMware**, it simply means that it is built **for the working of your VMware environments**, which was created as a joint venture **with VMware, to enhance the working of VMware** along with the VxRail solution that we have.

The Dell Technologies HCI system VxRail is created with the core intention to simplify the customers experience and to ease the efforts of organizations who are looking to modernize their infrastructure, increase the efficiencies of IT, improve the capabilities they have with respect to scale and achieve all of these while reducing IT cost. VxRail addresses all the requirements that the users have and make the goal achievable.

VMware Cloud Foundation on VxRail helps the user to build their own cloud without having to worry about the chaos, providing the customer a simplified and quite direct path to modern applications and towards the hybrid cloud. The advantage the users would see is due in terms of efficiency and uptime is due to the use of familiar VMware tools and consistent VxRail Operation processes we have, which will be used to deploy and manage various clusters across the cloud infrastructure.

It lets you do a lot of your task easily and can also automate quite a lot of tasks using various softwares. VCF on VxRail lets the user conveniently let you deploy, manage the users traditional VMs and hosts the same along with the cloud native applications and workloads, and all this the VCF on VxRail across core, edge, and cloud environments. Based on the study it was noticed that the users who have implemented the VCF on VxRail were able to achieve greater benefits by streamlining operation and reduce TCO up to 47%.

4.1 The VCF on VxRail Solution

The VCF on VxRail solution is specifically made up of two parts, (1) The Workload Domain and (2) The Management Domain, even though both nodes in picture here is made up of basically the same type of VxRail Nodes, the uses of these Domains are different. The Workload Domain is designed with the intent in mind to cater to the customers day to day operation requirement w.r.t to the applications they are running. Whereas at the same time Management Domain is curated with the intent in mind to cater to the software suite requirements of the customer (which can vary from customer to customer and use case to use case) which take care of the user's day to day management task.

The integration of both together brings a lot of value to the table that makes the VCF on VxRail unmatched to any other HCI system in the market right now. Along with the same we have integration of both managers of VMware bit and VxRail bit, which comes together to help us increase the value. The Software Defined Data Center SDDC manager and the VxRail Manager, comes together and integrates themselves together and helping in the patching, updates, management task and so on and at the same time taking care of the Life Cycle Management of the system.

One of the examples where we can see how the VCF on VxRail benefits the user is that we have the SDDC manager continuously looking out the VMware repositories for patches and upgrades rolling out for VMware, at the same time it also keeps a tab on the updates that are rolling out for VxRail as a system in its respective repository as well. The interesting thing to note over here is that when the SDDC manager finds an upgrade available for VMware, it downloads the same and updates the features automatically, but whereas when it finds an update for VxRail in its respective repository, it goes ahead and downloads the same but doesn't install the updates, It passes the same to the VxRail managers and gives it the alert of the available update. The VxRail manager can then be used to implement the update,

which the update process is taking place the SDDC manager acts as a spectator and watches over the entire process till it is installed, and once it makes sure that the update has been installed it goes ahead and updates the record to reflect the latest version. There are various other capabilities like these that are brought to the table with integration of SDDC manager and VxRail manager that we see in VCF on VxRail.

The Figure 3 below shows the pictorial representation of what each of the Managers take care of and all said and done their integration simplifying the user efforts as well.

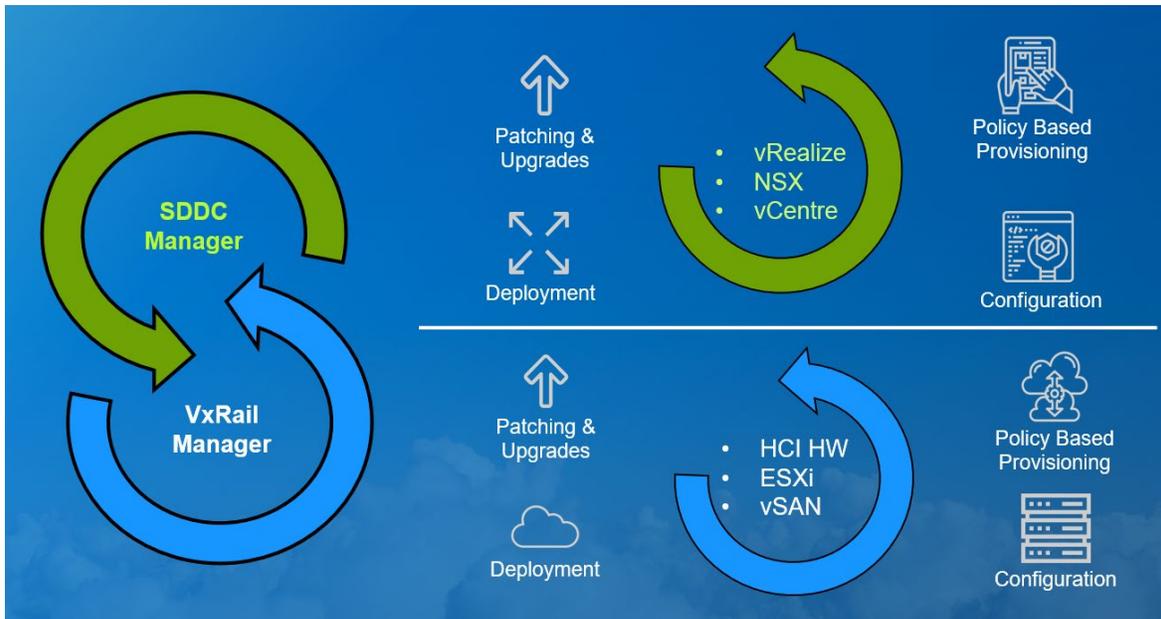


Figure 2: Integration of the Manager in VCF on VxRail.

In this case the SDDC manager takes care of the Patching & Upgrades, Deployment, Policy Based Provisioning, and configuration for the vRealize suite, Network Virtualization Software NSX and vCenter. Whereas VxRail Manager takes care of the same tasks but for the underlying HCI hardware, ESXi and vSAN.

4.2 Benefits of VCF on VxRail

The key benefits that we have in VxRail is as follows:

- It gives the customer a curated HCI system that gives them turnkey experience which is ready to deploy.
- Gives the user visibility and control from top to bottom of their system deployed so they find themselves always in control of what they own and use.
- Automated Lifecycle management task that takes care of most of the Lifecycle management task such as patch and updates so that the user always goes from one good known state to the other.
- Single Source of support for both hardware and software, so that the user doesn't have to worry about reaching out to multiple vendors. Dell Technologies have 1800+ VMware-Certified Dell EMC support professionals who provide you single call support. In the past we have recorded 98% if VMware cases resolved in house.

- Factory tested and Validated Patches and updates so that the user always moves from one good known state to the other.
- Deep integration for better user experience and the ability to provide an extension of VMware's native capabilities.

5. Google Cloud Platform on VxRail

Now the VCF on VxRail supports a lot of long lists of public cloud vendors out there and help the customers leverage the benefit of various cloud portfolios out there. With the announcement made in Late May 2020, Dell Technologies and Google Cloud have together decided to have the integration improved and have them tightened to increase the value.

With that the users are now able to integrate between Cloud Platforms and Container Platforms along with the VMs on Dell Technologies VxRail Solution. The combination brought together various capabilities together such as VMware's Tanzu Kubernetes Grid, VMware Cloud Foundation (VCF), vSphere and VxRail into one single powerful system.

The users can leverage the same and bring out the most out of their system by using the various products Google Cloud must provide. To call out one of the products that the users can leverage from Google Cloud by using VxRail is Anthos. VxRail is one the Anthos Ready Platform that is even documented in the Google Cloud Websites.

There are namely Anthos versions that are currently compatible with the vSphere Versions that the VxRail system would be using. By that the customers will have a lot of capabilities for development and Operations. Table 1 below shows the Anthos version we have with Google Cloud.

Anthos Version	vSphere Version	Bare metal OS version
1.7.x	7.0.2	-
1.8.x	7.0.2	-
1.9.x	7.0.3	-
1.10.x	7.0.3	-

Table 1: The Qualification matrix for Anthos Version to vSphere version.
(Source: cloud.google.com/anthos/docs/resources/partner-platforms)

6. Conclusion

As we have covered through this article, we do see that the Google Cloud Platform and its large list of available products adds value to the user and gives them the power to leverage various tools to achieve the ever-changing requirements they might face in the journey of Digital transformation. The potential or ideal use case of Google Cloud Platform can be considered as the follows (1) If it is a large organization that go through a lot of permission while working on the specific project of theirs. The Google eases it with its remarkable hierarchy that allows us to set policy at the upper most level and let all the task follow. By this the sub-organizations/divisions can take quick actions but still can be made to stay bound to the limitation that the organization has set. Another potential customer is (2) Organizations have the demand to leverage the advanced tools such as Analytics, Big Data, Machine Learning or so on. The organization can just simply import their data onto GCP and then look forward towards their KPIs and data mine.

VCF on VxRail brings to the user the best of both worlds by bringing together a tighter integration between the VMware and Dell Technologies Hardware making the solution the best in the market right now. It was studied that the users of VCF on VxRail were able to achieve 68% more efficient IT with the automated infrastructure management and at the same time were able to achieve 92% less unplanned downtime. VCF on VxRail along with its various software suites such as VRealize Suite, operations make it one of a kind and adds abundant value to the customer. Added on VxRail can also be integrated with the Google Cloud so that the users can leverage based on the unique requirement of each of them and curate the application and solutions that best fit them. The VxRail all in all gives customer more like a turnkey experience so that they have more time innovating and less time firefighting.

7. References

1. Google Cloud Platform Page: <https://cloud.google.com/>
2. VCF on VxRail Page : https://www.dell.com/en-in/dt/converged-infrastructure/vxrail/index.htm?gacd=9688261-7046-5761040-323612810-0&dgc=ST&gclid=EAlalQobChMljiT2g6Xf9gIVY5pmAh3h0Qh6EAAYASAAEglGrvD_BwE&gclidsrc=aw.ds#tab0=0&tab1=0&pdf-overlay=//www.delltechnologies.com/asset/en-in/products/converged-infrastructure/briefs-summaries/dell-emc-vxrail-and-vmware-better-together.pdf
3. Google Anthos Page: <https://cloud.google.com/anthos/docs/resources/partner-platforms>
4. TechRepublic Article: <https://www.techrepublic.com/article/google-cloud-platform-the-smart-persons-guide/>
5. Zednet Article : <https://www.zdnet.com/article/dell-technologies-google-cloud-tighten-up-integration-storage-links-for-data-heavy-workloads/>

Disclaimer: The views, processes or methodologies published in this article are those of the authors. They do not necessarily reflect Dell Technologies' views, processes, or methodologies.

Dell Technologies believes the information in this publication is accurate as of its publication date. The information is subject to change without notice.

THE INFORMATION IN THIS PUBLICATION IS PROVIDED "AS IS." DELL TECHNOLOGIES MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WITH RESPECT TO THE INFORMATION IN THIS PUBLICATION, AND SPECIFICALLY DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Use, copying and distribution of any Dell Technologies software described in this publication requires an applicable software license.

© 2023 Dell Inc. or its subsidiaries. All Rights Reserved. Dell and other trademarks are trademarks of Dell Inc. or its subsidiaries. Other trademarks may be trademarks of their respective owners.