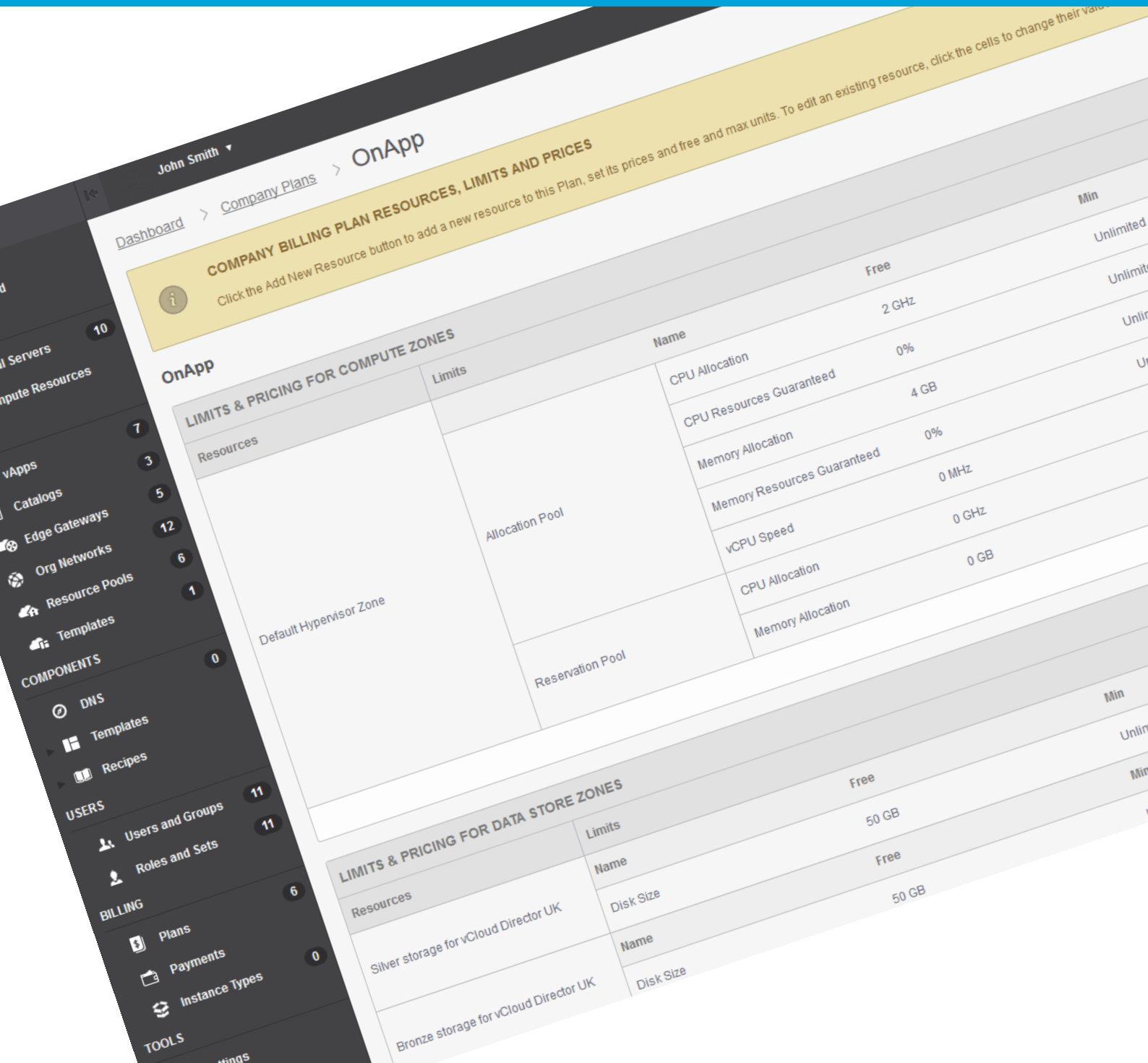
Enhancing vCloud Director billing with OnApp

OVERVIEW AND SET-UP GUIDE



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onapp

Introduction

OnApp's portal for vCloud Director is designed to enhance both the end user experience and the range of functionality available to VMware vCloud Air Network service providers.

Metering and billing is one of the key functional areas enhanced by OnApp, and from the release of OnApp v5.0, service providers have even more flexibility in how they measure and charge for vCloud resources.

By adding OnApp to vCloud Director, you get significantly more control over how resource pools (VDCs) are charged for, and a much more intuitive way to create, implement and manage billing plans - removing the need to use the VMware Chargeback Manager tool.

This paper covers the four most common billing scenarios that VMware-based service providers use with OnApp:

- Contracted Amount
- Pay As You Grow
- Contract plus burst
- Pay As you Go

It also explains how network resources can be billed for with OnApp, how custom billing models can be implemented, and how OnApp makes billing data available to third party billing engines and business intelligence tools.

OnApp for vCD: billing models

There are several ways you can utilize OnApp's extensive built-in billing and metering system. Under vCloud Director, there are two main billing options:

- Charges against each virtual machine (user billing)
- Charges against resource pools (VDCs – company billing)

You can use either both billing systems to create your own customized products. Or you can combine company and user billing to create a reseller program – the company billing plan being used to charge a reseller for their resource pool, while the reseller then charges their end customer with User billing for virtual machines .

Inside the Virtual Machines charging model in OnApp, you or your resellers can charge for resources, including:

- CPU Core Allocation
- RAM Allocation
- Disk Space Allocated
- Input/Output Disk Request
- Read/Write Disk
- NIC IP address
- Send/Receive Bandwidth

You can also set limits for users, such as the number of virtual servers they can deploy.

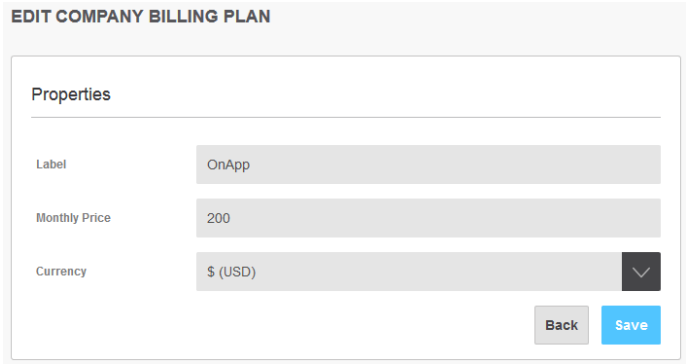
The OnApp portal provides flexible control over how resource pools (VDC) are charged for, including Contracted Amount, Pay As You Grow, Contract Plus Burst, and Pay As you Go. With these scenarios you may opt to bill on an Hourly Basic or a Monthly peak. The monthly peak will be displayed on the first hour of the first day of the month.

The following sections look at the different billing models, and how to configure them in OnApp, in more detail.

Contract Amount

With 'Contract Amount' billing, you charge clients based on a contract that has been signed by the customer.

For the customers who hold the contract, you create a company billing plan in OnApp, with the amount entered under the monthly price, and the currency set for the billing.



That price will be charged to the customer at the end of each month. The customer can see the amount being charged per month under their user group.

Once the company billing plan has been created, you then use OnApp to set up compute resource restrictions, as required. Simply click on the label of the billing plan, add the compute resource zone that the customer has access to, and set the free and maximum value for each resource to the amount specified on the customer contract. This will prevent the customer from being able to exceed their contracted resources.

The next step is to configure storage. To the billing plan, you add each storage policy that the customer has access to, which will be based on their contract. Set the amount of storage given for free, and the maximum that the customer can request for each storage policy that has been specified on the customers contract.

For the network configuration, add the appropriate network zone to the billing plan. See the network billing section of this paper for more details about charging customers for network resources.

Pay As You Grow

The 'Pay As You Grow' scenario provides the ability to charge customers based on their usage of a resource pool (VDC). Customers will have an increased charge based on the expansion of the resource pool (VDC). This scenario is commonly used with creating tiered plans. When a customer hits the maximum of a tier, they will be assigned to the next tier with a reduction in pricing per resource.

To set this up in OnApp, the first requirement is to create a new company billing plan with the current and monthly amount set to 0. Once this is completed, the next step is configuring the resource charges.

First, add the compute resource zone that the customer will have access to. With 'Pay As You Grow' you can choose to charge customers hourly for their resource pool size, or on a monthly peak.

After you have selected which type of billing option you wish, you may then configure the price for allocated CPU and RAM. It is optional, but recommended, to set a maximum amount for the resource. This prevents customers from consuming all your resources at once and provides the tier cap.

LIMITS & PRICING FOR COMPUTE ZONES

Resources	Limits	Name	Free	Min	Max	Prices
Default Compute Zone	Allocation Pool	CPU Allocation	0 GHz	Unlimited	24 GHz	$0.02000000 per GHz/hr
		CPU Used	Unlimited			$0.00000000 per GHz/hr
		CPU Resources Guaranteed	Unlimited	Unlimited	Unlimited	$0.00000000 per percent/hr
		Memory Allocation	0 GB	Unlimited	8 GB	$0.04000000 per GB/hr
		Memory Used	Unlimited			$0.00000000 per GB/hr
		Memory Resources Guaranteed	Unlimited	Unlimited	Unlimited	$0.00000000 per percent/hr
	Reservation Pool	CPU Allocation	Unlimited	Unlimited	Unlimited	$0.00000000 per GHz/hr
		Memory Allocation	Unlimited	Unlimited	Unlimited	$0.00000000 per GB/hr
	Pay-As-You-Go Pool	CPU Used	Unlimited			$0.00000000 per GHz/hr
		Memory Used	Unlimited			$0.00000000 per GHz/hr

Next, add each storage policy that applies to the particular tier or customer. You can charge for the storage on an hourly or monthly peak amount. It is recommended to use the same billing option as was set in the compute resource. Set the pricing for the allocated disk size for each storage policy and a maximum that is recommended.

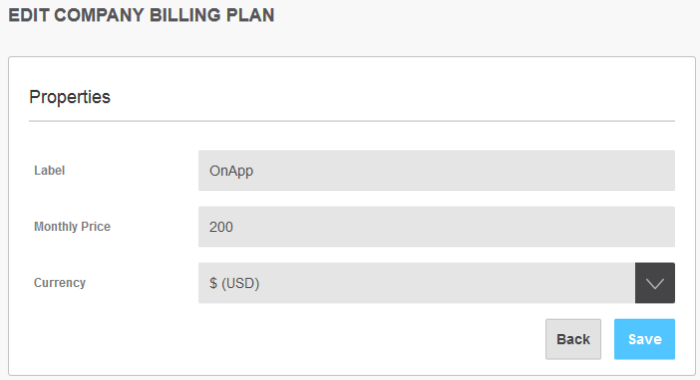
LIMITS & PRICING FOR DATA STORE ZONES

Resources	Limits	Name	Free	Min	Max	Prices
Silver storage for vCloud Director 8		Allocation Disk Size	0 GB	Unlimited	200 GB	$0.00234000 per GB/hr
		Used Disk Size	Unlimited			$0.00000000 per GB/hr
Gold storage for vCloud Director 8		Allocation Disk Size	0 GB	Unlimited	50 GB	$0.00314000 per GB/hr
		Used Disk Size	Unlimited			$0.00000000 per GB/hr
Bronze storage for vCloud Director 8		Allocation Disk Size	0 GB	Unlimited	Unlimited	$0.00197000 per GB/hr
		Used Disk Size	Unlimited			$0.00000000 per GB/hr

Contract Plus burst

With the 'Contract Plus Burst' scenario, you have a contract with a fixed amount of resources provided to a company, and the ability for the customer to burst past that amount if they need more resources, on a temporary basis.

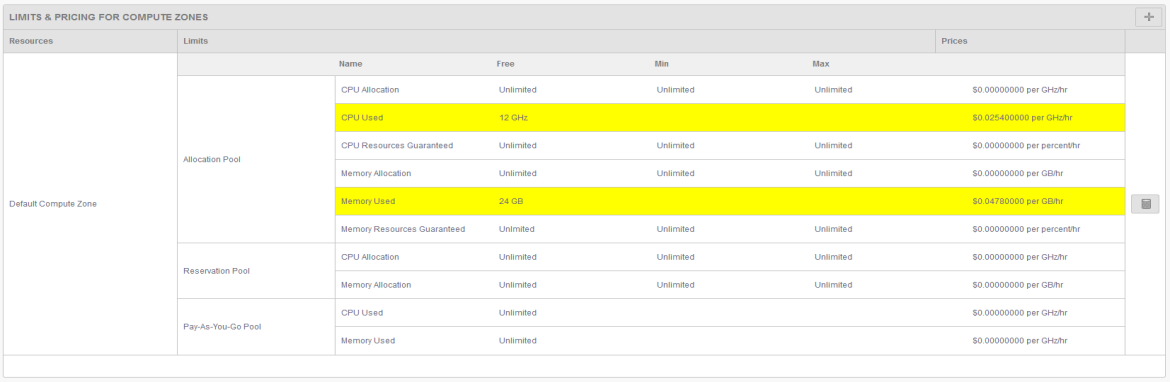
For the company(s) that have the same Contract Plus Burst option, you use OnApp to create a company billing plan, with the monthly contracted amount entered under the monthly price, and the currency set for the billing.



That price will be charged to the customer at the end of each month. They can then see the amount being charged per month under their user group.

Once this is completed, the next step is to configure the compute resource charges. First, you add the compute resource zones that the customer has access to, to the billing plan in OnApp . With 'Contract Plus Burst' there is the choice to charge customers hourly for their burst, or on a monthly peak.

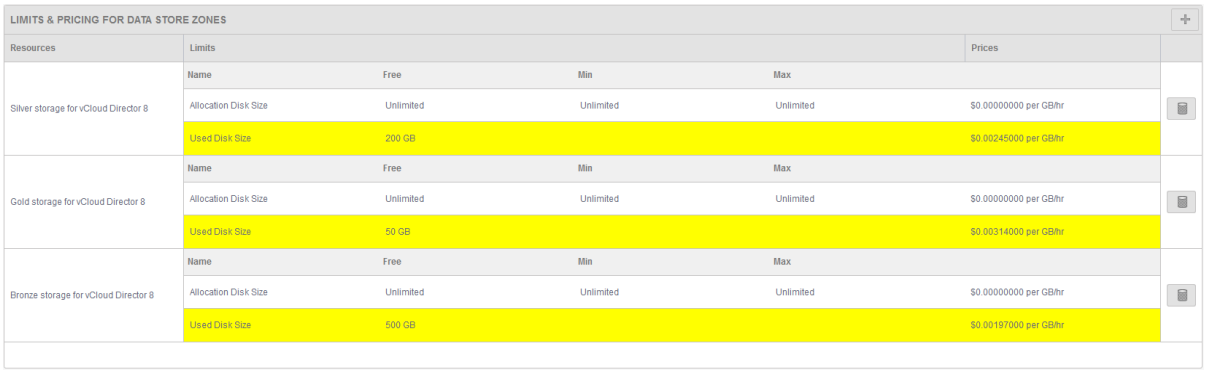
For bursting, there is an option to choose either an "allocated amount", which will require the customer to knowingly reconfigure their resource pool before bursting, or a "used amount", which will allow them to burst by deploying extra vApps.



Set the free amount based on their contracted amount, and set the max to the maximum they can burst to. Once this is done, you can set the price they will pay for the resource they will burst to, beyond the contracted amount.

Next, add each storage policy that applies to the customer. You can charge for the storage on an hourly or monthly peak amount. Similarly to compute, can you choose to charge for the "allocated amount" the customer knowingly bursts past, beyond their contract, or the "used amount", by deploying a vApp or increasing/adding disks to an existing Virtual Server.

Set the amount of free resources based on the contracted amount, and define the maximum they can burst past. Then set the pricing that will be charged when the customer bursts past the contracted amount.



LIMITS & PRICING FOR DATA STORE ZONES

Resources	Limits				Prices
Silver storage for vCloud Director 8	Name	Free	Min	Max	
	Allocation Disk Size	Unlimited	Unlimited	Unlimited	$0.00000000 per GB/hr
	Used Disk Size	200 GB			$0.00245000 per GB/hr
Gold storage for vCloud Director 8	Name	Free	Min	Max	
	Allocation Disk Size	Unlimited	Unlimited	Unlimited	$0.00000000 per GB/hr
	Used Disk Size	50 GB			$0.00314000 per GB/hr
Bronze storage for vCloud Director 8	Name	Free	Min	Max	
	Allocation Disk Size	Unlimited	Unlimited	Unlimited	$0.00000000 per GB/hr
	Used Disk Size	500 GB			$0.00197000 per GB/hr

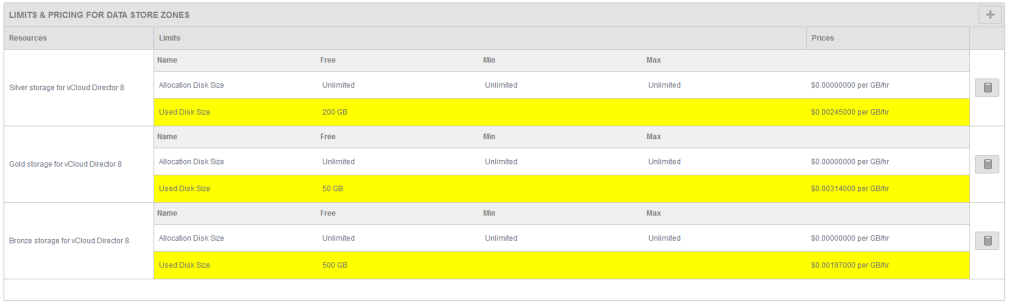
Pay As You Go

The 'Pay As You Go' scenario provides the ability to charge customers based only on their resource usage. This is scenario is most commonly used with the 'Pay-As-You-Go' resource pools (VDC) and is fairly common for start-ups to use, as they are committed to the charge associated for the resources consumed.

The first thing that is needed in OnApp is a new company billing plan. This new plan will be configured with the correct currency and the monthly amount set to $0. Once this is completed, the resource charges can then be configured.

First, add the compute resource zone that the customer will have access to. With 'Pay As You Go', there is the choice to charge customers hourly for their resource pool size, or on a monthly peak. Typically, hourly is used for the 'Pay As You Go' scenario. After you have selected the type of billing option needed, you then configure the price for CPU and RAM used.

Next, add each storage policy that applies to that particular customer. You can charge for storage based on an hourly or monthly peak amount. For this, it is recommended to use the same billing option as was set in the compute resource. Set the pricing for the used disk size for each storage policy.



For the network configuration, add the appropriate network zone to the billing plan. See the network billing section of this paper for more details about charging customers for network resources.

Build your own billing models

OnApp has an extensive metering system for every resource in your cloud. This enables you to create bespoke billing models in addition to the common contract and PAYG models described in this paper.

To enable metering of any resource, the zone first needs to be added to the billing plan. After the zone is added, OnApp will take an hourly snapshot of the resources in the resource pool.

This includes resources beyond those normally include in company billing plans, such as:

- Number of Deployed Edge Gateways
- Number of Deployed Org Networks

This information can be pulled out via the OnApp API to integrate into a billing system or a business intelligence tool. This provides flexible way for service providers to implement custom billing requirements and unique pricing models.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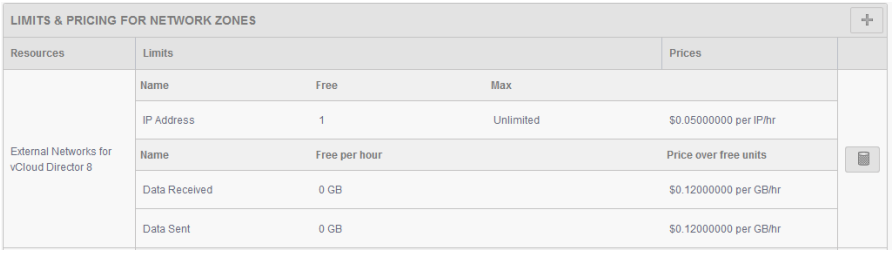
Billing for network resources (in all models)

OnApp provides the ability to charge customers for traffic that passes through the edge gateway. You can charge for North/South traffic without charging for East/West. OnApp also enables you to bill for IP Addresses and Bandwidth Usage.

Billing for these network resources is possible in all of the billing models previously described - so you can either charge based on usage, or provide free amounts with contracts. Network charges can be set on an hourly or monthly basis.



LIMITS & PRICING FOR NETWORK ZONES

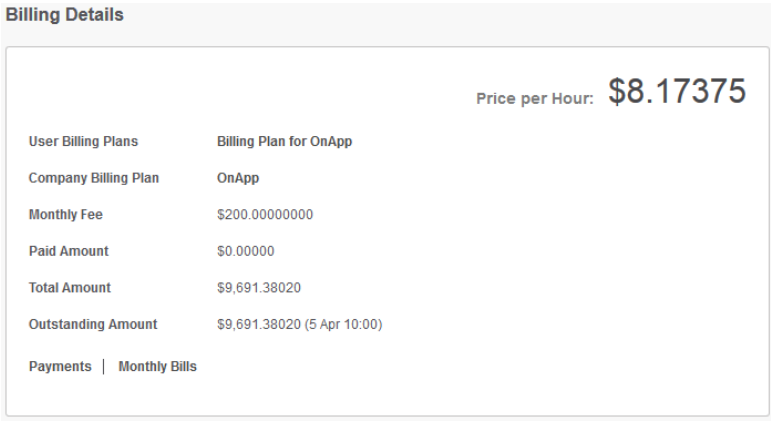
Resources	Limits			Prices
External Networks for vCloud Director 8	Name	Free	Max	
	IP Address	1	Unlimited	$0.05000000 per IP/hr
	Name	Free per hour		Price over free units
	Data Received	0 GB		$0.12000000 per GB/hr
	Data Sent	0 GB		$0.12000000 per GB/hr

Integrating with your billing systems

OnApp provides detailed billing information on each customer. This can be pulled out manually, or integrated into your billing system via a script to OnApp's RESTful API.

Monthly billing data

OnApp provides monthly billing information, including the total amount each customer has used on the platform, the totally monthly fee, how much the customer has paid and how much is still owed.



Integration between OnApp and billing systems is bidirectional: OnApp calculates monthly bills, which are pushed to external billing systems, while billing systems submit payments back to OnApp. This can be done manually, or automated via an integration script.

Hourly billing data

If more granular information is required, the cost per hour can be pulled out of each resource pool, if hourly billing is configured for a particular customer's billing plan. This can be used to show customers their charge on an hourly basis for compute, network and storage resources.

Date	User Group	Resource Pool	Network Usage	Storage Policy Usage	Costs
1 Apr 00:00	OnApp	onapp 2nd vDC allocpool $0.90000000	External $0.00000000 Public $0.00000000	Gold storage $0.41055000 Silver storage $0.27846000 Bronze storage $0.73800000	$2.32701000
1 Apr 01:00	OnApp	onapp 2nd vDC allocpool $0.90000000	External $0.00000000 Public $0.00000000	Gold storage $0.41055000 Silver storage $0.27846000 Bronze storage $0.73800000	$2.32701000

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