WHITEPAPER

VERSION 1.0

TABLE OF CONTENTS

Introduction

As technology continues to advance at a rapid rate, new business models have emerged such as Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). These business models take advantage of the scale of implementation to drive the costs lower and the efficiency higher. Such business models allow end customers to use the "pay-as-you-go" model and pay per resources used or pay per user. While this model works great for bigger companies which have a full IT staff and have the resources to build/integrate systems, small-to-medium businesses (SMBs) end up paying a much higher cost due to their size as they can't take advantage of the scale.

On the other hand, open-source technologies have been on the rise recently where a community of developers volunteer their time to add features to the product. Many companies like Microsoft, Google, Facebook and Netflix have also open-sourced a lot of their internal tools to give back to the developer community. Some companies like Docker and RedHat thrive on the open-source model. Wordpress, the world's largest web content management system (CMS), powers over 26% of the internet, and has staggering 60% share in the CMS space. Open-source technology is quickly catching up with commercial solutions in terms of functionality and reliability, and therefore erasing more licencing costs.

For small companies it is cheaper to use open-source softwares and integrate them for their infrastructure, However, it is time-consuming, and requires expertise. Consulitar has a solution that can provide this integration of open-source technology that can be deployed on the cloud, on-premise, or be provided via the SaaS model. Consulitar uses something known as the IT as a Service model (ITaaS) to drive costs lower while maintaining flexibility for organisations. This centralized solution takes away all the stress of managing your IT infrastructure and allows you to focus on your business. Simply put, it is use of automation and technology to drive business value.

The Problem

The “Cloud” is the hottest buzzword in the tech industry right now, and for good reason. It decreases cost, increases uptime, is elastic when it comes to capacity, and provides a “pay-as-you-go” model. In fact, there has been 22% increase in Virtual Private Cloud use and 12% in public IaaS use between 2015 and 2018 (Elumalai, Starikova & Tandon, 2017). For big businesses which write their own applications and serve millions of clients, the cloud is the place to be.

On the other hand, small to medium businesses do not have the resources to hire an entire staff of IT personnel and software developers. They don’t need the public cloud to host all of their data as they don’t have the manpower to set it up manually. Even if you do have the manpower, with the growing number of services, it can be very easy to rack up a $100 a month bill, while still paying for dedicated personnel and all the licenses for the services that you use. With over 90 services on AWS alone, it can be very tough navigating through the offerings and figuring out what the company needs.

Most companies tend to subscribe to cloud-ready suite application such as Office365 and G-suite. While these do a good job of solving all the complexities for the end user, these services can easily become expensive very quickly at $5 a month per user for G-suite (Pricing Plans | G Suite, 2018) and upwards of $10 a month per user for Office365 (Office 365 Enterprise Pricing, 2018). Additionally, the company still has to pay to additional licenses for additional products and then worry about integrating all the services to a centralized system.

For SMBs, it is very hard to justify the cost of all these services when they are very small, as they don’t have the resources to set these things up, nor do they receive better benefits as they are not a large-scale business yet. Thus, there needs to be an option for SMBs to have an infrastructure they need, without dealing with all the expensive and complex offerings.

Our Solution

Consulitar aims to solve this problem for SMBs using our AutoInstall project, and our premium consulting and hosted service to ensure that SMBs have the option they need at their stage in the business. AutoInstall is an open-source project that uses Docker and Kubernetes technology to integrate all the services into an infrastructure on the fly. For example, if you have a website and an email server, and you decide you need a new integrated wiki, you can do so on the fly and integrate it with a click of the button without any additional work. AutoInstall primarily uses other open source projects to create the infrastructure, with paid plugins for integrations with commercial solutions. The AutoInstall project can be deployed anywhere, including the cloud, but instead of subscribing to all the services and different virtual machines, all of these services can be housed on a single machine.

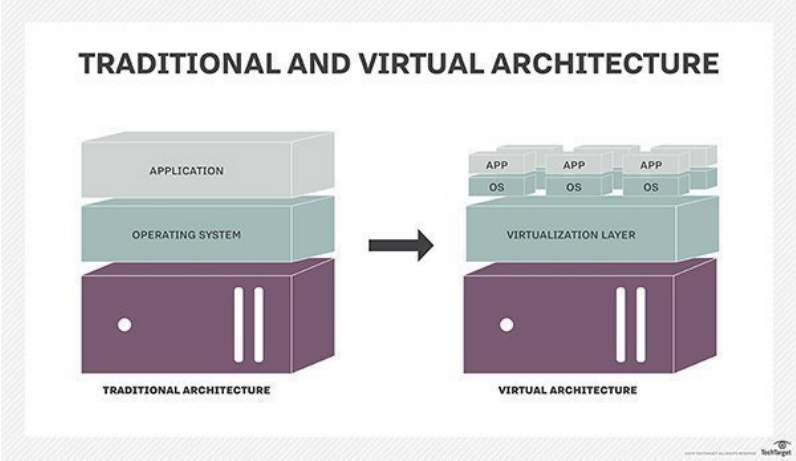
Consulitar will also sell an AutoInstall device, which will house all the functionality of AutoInstall into a "box" and would allow users host all their services on their own premise. In the age of privacy concerns, this allows users to maintain complete control over the data. As most of the code is open source, users can also audit the code at any point to ensure that code is secure and fits all the compliance guidelines. The box would also include premium complimentary support from Consulitar for a year, and a lifetime of free updates.

Last, Consulitar will also provide a hosted solution where clients can pay a monthly fee to Consulitar for hosting all their services. This "managed-services" model is designed for customers who prefer the traditional payment model with the human touch. Our disruptive pricing will be based per service and the data used, and not per user, making scaling more efficient and economical.

The rise of cloud

The concept of cloud computing is nothing new. While most people "cloud" is some magical entity, the cloud is simply a bunch of servers configured to work together as a large environment. Most companies have traditionally always had an on-premise datacenter which hosted all of their digital infrastructure. In fact, that was the traditional Microsoft model where you bought servers, and paid Microsoft a license fee for all the software. Then, you configured all the products together to create an infrastructure. This meant for every machine, you had a buy a separate physical machine. This entire model of IT is called on-premise deployment.

Next, came the era of virtualization, where you could run multiple "virtual" machines on a physical server. This was a huge advancement in technology as it allowed you to run multiple services on the same physical machine securely and be able to take advantage of unused resources on powerful servers. This meant that instead of buying two physical servers, you could buy one overpowered server at an overall cheaper price and still get functionality of two physical servers. Virtualization is the backbone of current on-premise deployments of IT.

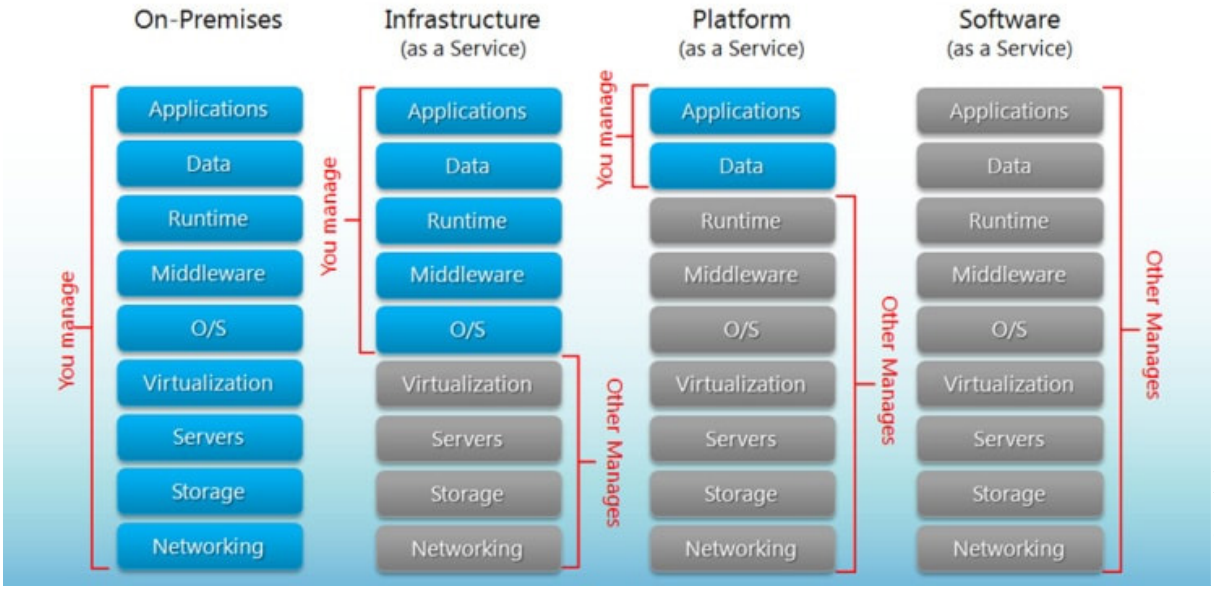


Source: techtarget.com

In the last decade, there has been exponential increase in the reliability of hardware, coupled with decrease in the price. Large companies like Amazon and Google started creating massive datacenters allowing them to buy a lot of computing power at a cheaper price. For example, Amazon's AWS unit currently has over 1.5 million servers by a conservative estimate (Clark, 2015). Companies like Amazon use virtualization to create virtual

machines, and they sell access to these virtual machines and other related services to its customers. This is what is often referred to the public cloud. This setup is "public" because you are essentially sharing computer resources for your infrastructure with other customers of Amazon. This service is also called Infrastructure as a Service (IaaS).

There are other "as a service" models that are currently popular in the industry. Companies like Salesforce give you the platform to code a solution using their software and host it on their infrastructure. Unlike IaaS, you are not in charge of the underlying infrastructure, but you are still in charge of the code and how the service is developed for you use. This is known as Platform as a Service or PaaS. Last, you can also pay companies to host the entire application for you. For example, you can pay Microsoft to host all your email on Outlook and all your data on Onedrive. In this situation, all you do is pay for the service and integrate it, and everything else is handled by Microsoft. This model of paying Microsoft is called Software as a service (SaaS) (Watts, 2017).



Source: hostingadvice.com

While the rise of cloud has bought about a lot of good things for the industry including lower costs (particularly for the big companies), enhanced reliability and speeds, and better service, the cloud also brings along its fair share of problems:

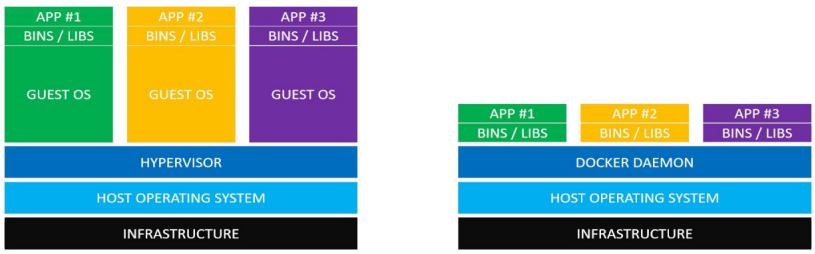
- It is extremely difficult to integrate all the services unless you have an expert on staff

- You can rack up huge costs as you keep adding services and users
 - Security is a huge concern. If one of other customers of the cloud has a breach, you can be at risk (Kulkarni G., Chavan N., Chandorkar R., Waghmare R. & Palwe R., 2012)
 - You do not have complete control over where your data goes on the cloud's network. You also need a reliable and secure way to communicate with the cloud data

The rise of Docker

Docker is an open-source technology that was released in 2013 which pioneered the concept of containerization of applications. While virtualization allowed physical machines to run multiple virtual machines, Docker is used to run multiple containers of applications on the same operating system. For example, to run a website, you need to install the web server, the database, and other dependencies. Using Docker, you can create a container that has all the dependencies already installed on it, and then deploy the application with a click of a button. The main advantage of Docker over VMs is that is avoid all the additional overhead of installing separate operating systems and management of extra resources (Seshachala, 2015).

Docker is completely open source and has been widely adopted in the industry in the last few years. With Docker, applications can be completely packaged into a single image and multiple instances of the image can deployed instantly. In fact, Google uses technology like Docker for all the applications. Chances are, whenever you search something on Google, your request is being served through a container.



Source: docker.com

Virtual Machines

Docker Containers

Docker has a lot of advantage, namely the fact that it gets rid of all the overhead associated with managing multiple VMs (Tozzi, 2016). Docker is also inherently secure as all the services are hidden from the outside network unless specifically given permission, helping you protect yourself against accidental coding errors.

The performance and simplicity of Docker has made it so popular that many cloud customers deploy Docker on all their virtual machines instead of buying additional virtual machines. This saves them cost and time and allows them to rapidly scale if required.

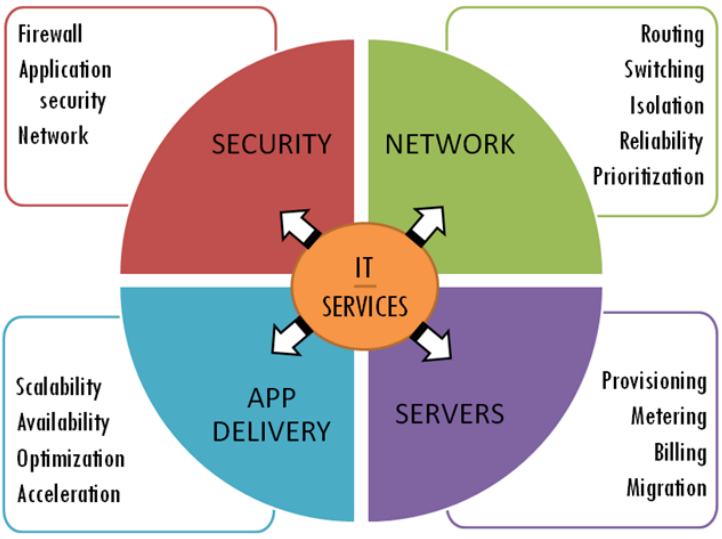
Where Consulitar fits in

Consulitar believes that we are the next logical step in the trend of how the industry is evolving. We have two main offerings: our consulting service, and our AutoInstall products. Our consulting business follows the "IT as a Service" model (ITaaS) where we take over your entire IT department. Instead of having an entire IT staff, you could simply pay us to host your services for you and provide you with tech expertise. In this model, we use AutoInstall on our network, and let you manage all your services using the online portal.

Our second service is the AutoInstall box and software. The box is a singular device that hosts all of AutoInstall's core functionality. In this scenario, all you need to do is to plug your box into power and directly into the internet, and you can manage all your services via the web interface within your own network. We provide premium support for the first year for free, with an additional flat rate per box after the first year. Last, while the core functionality of AutoInstall is free, we do charge a nominal fee for premium plugins which integrate with paid industry software. This is a one time charge per instance, so you are only paying for the number of boxes you use.

Our services mostly fit small to medium businesses as our services are easily scalable only up to 1000 users. We aim to provide disruptive pricing and easy to use technology to our customers to ensure that they have the right tools to work. We also provide migration tools for all our clients, so if they want to migrate to our services from our competitors, and then eventually move to paid services once the size of their company grows.

Source: f5.com



How it works

Consulitar makes use of tried and tested open source applications to deliver a comprehensive suite of applications. All the applications in AutoInstall are packaged as Docker containers, which means that applications can be added and removed at the click of a button. AutoInstall provides a central web interface to manage applications, users, and integrations for easy administration. All the applications are preconfigured to work with the web interface, and with each other. As docker images, all the applications are configured with industry best practices, and updating the application is as simple as updating the image from our servers.

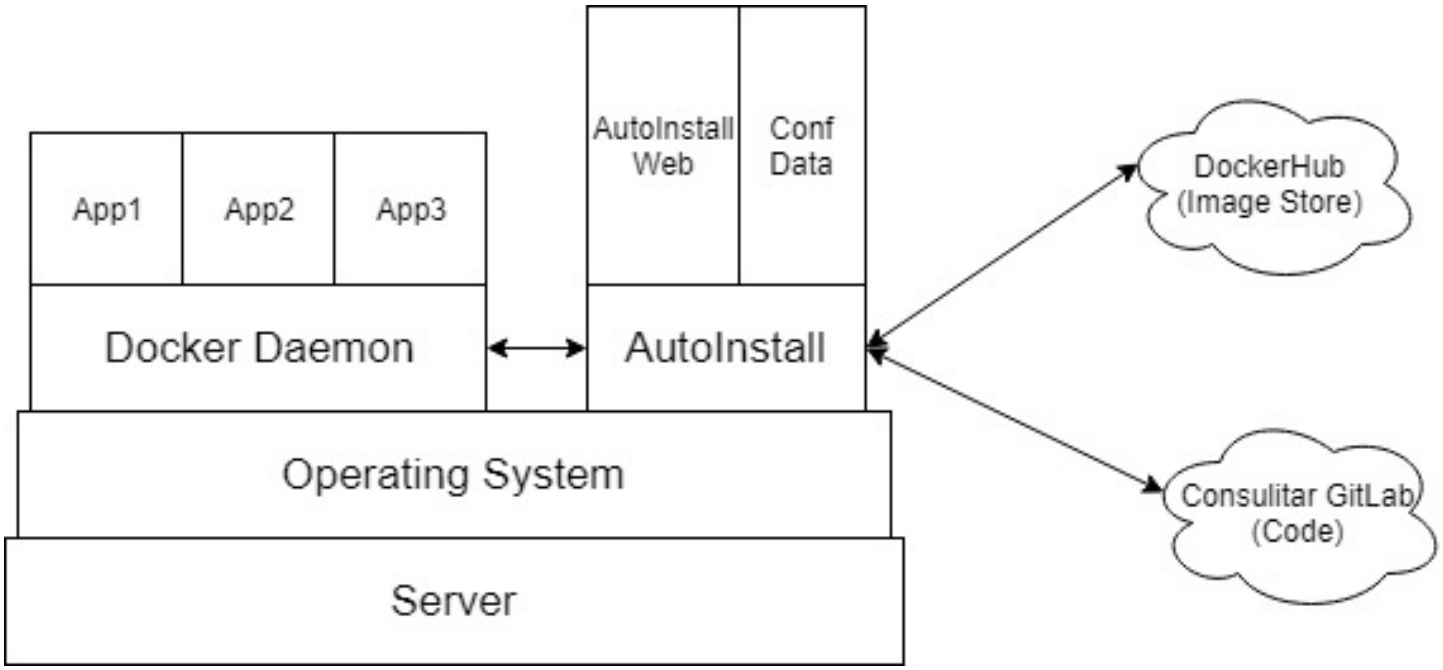
AutoInstall gets all the code and operating system updates from the GitLab code repository that is hosted by Consulitar. From time to time, AutoInstall pulls the code from GitLab, and then updates itself. AutoInstall runs on the host operating system compared to the Docker daemon. This is to ensure that AutoInstall can control all the containers natively while managing the web interface.

All the Docker images for the software are stored on Docker Hub, and are available to be downloaded individually if required. All updates are made directly to Docker Hub, and as part of periodic checks, AutoInstall pulls in updates from the Docker Hub. There is no long update process when applications are updated as applications spin up in seconds, and the applied updates are already part of the new image.

AutoInstall also makes use of Docker swarms to ensure that services are not overwhelmed by the traffic. For example, multiple instances of web server can be run using Docker to load-balance the traffic coming into the network. Using Docker Swarm, more physical servers can be added to the network without the need for reconfiguring the architecture of the infrastructure.

The physical “box” product is a highly customized Dell server which provided RAID-10 HDD redundancy, and redundant networking capabilities. The server also comes with redundant power supplies. This ensures that there is no single failure point on the Server, matching the reliability of most cloud providers.

AutoInstall is coded in Python, Shell, Ruby, HTTP, CSS, PHP, JS, and DockerFiles. We use industry standard tools and architectures to comply with all the best practices. We accept open-source contributions from all interested developers, but we maintain tight quality control over all the production code that is integrated into the project.



Services offered

Our current offerings on the AutoInstall project include over 100 open source softwares including email, GitLab, wiki, and more. All our services integrate seamlessly with each other. Premium plugins include integration with Google OAuth, Salesforce, and other commercial solutions.

Our current offerings for our premium support customers:

- 4-hour SLA on any issue with the AutoInstall service, and 8-hour SLA on every other managed service. 1-hour SLA for priority cases
- Support with installation, configuration, integration and deployment with all supported services in the client infrastructure
- Advanced training documents on integrating services and using the services
- Access to all our premium plugins at no additional cost

The AutoInstall box will feature one year of free premium support and limited hardware support. Customers will have the option to buy additional hardware support as well as extend software support. All updates to the core functionality are free forever.

Our ITaaS service has a flat monthly fee for supported managed services. These costs are tiered and are based on the number of services and the resources used. The costs are not dependent on the number of users, allowing flexibility and scalability to organizations.

We believe on democratization of technology and strongly believe that small companies should have the option to take advantage of advancements in on-premise and cloud-hosted technologies. Customers have the option to choose from any service they want.

Cost-savings case study

We did our own research as to how much it can cost a company at a young stage to create their own infrastructure using enterprise solutions that are currently available in the industry (Trivedi, 2018). For this scenario, we are taking the example of a small software development firm that has 25 employees.

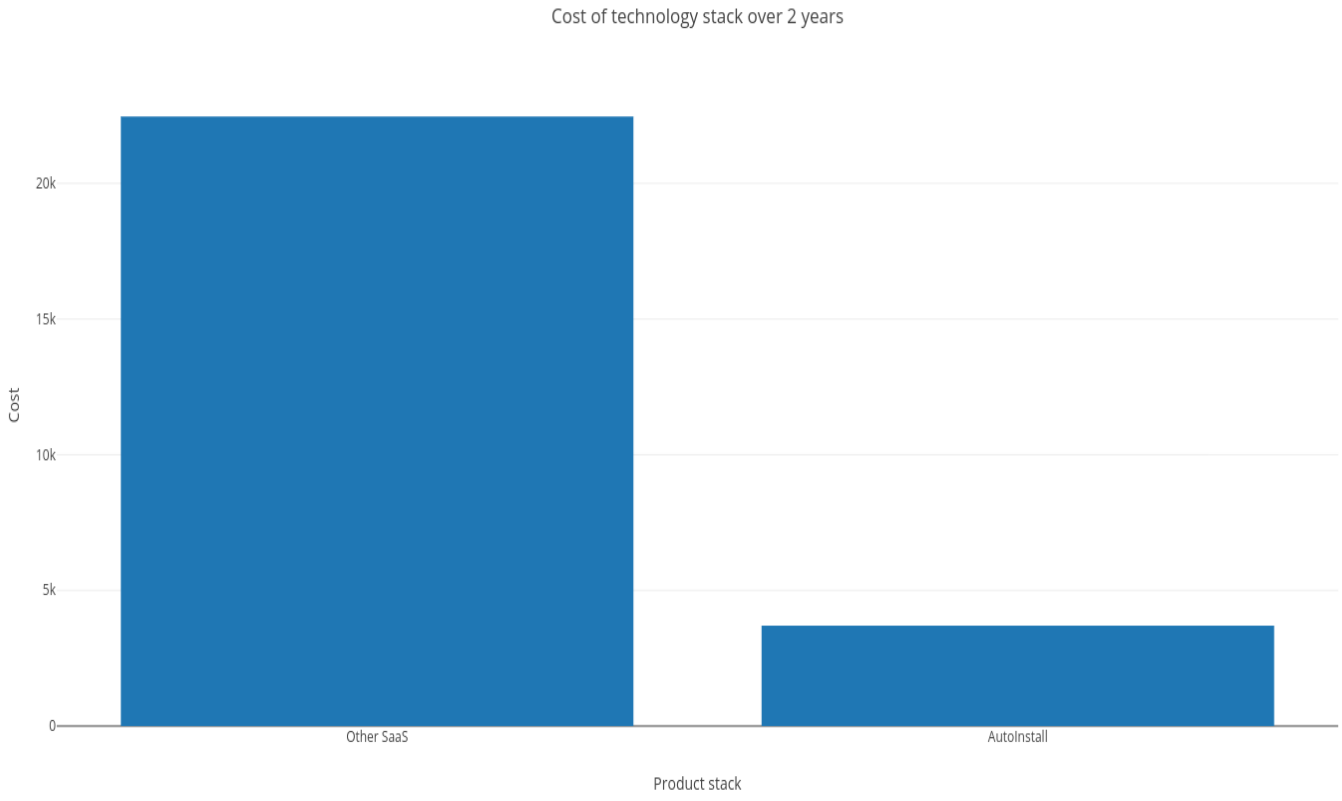
A typical cost breakdown for a firm this size in the software development is as follows
- The basic needs of the company include email, productivity tools (word/spreadsheets/presentation tools). All of these could be fulfilled by using G-suite, which costs $5 a month per user (the cheapest comprehensive option). Total: $125 per month (Pricing Plans | G Suite., 2018)
- As a software development firm, the company needs a way to store all of their code and be able to track changes in it. The industry standard solution is Github enterprise, which costs $21 per month per user. Total: $525 per month (GitHub pricing, 2018)
- A company also needs a website. Such a solution from Bluehost would cost $6 a month
- Companies also need documentation software to manage software projects. The Atlassian suite is the industry standard solution, which costs $10 per user per month. Total: $250 a month
- In addition to that, for every service that the company purchases, there is an additional cost per month. Additionally, the costs for the company rise as every new employee is added.

Assuming that there is only $30 a month in additional costs, the total cost for two years is equal to $22464.

On the other hand, this is what the service costs when using the box from Consulitar:
- Initial cost of the box: $2499 (payment plans available)
- Cost of enterprise alternatives of the open source tools above: $0
- Additional year of software support: $1200

With AutoInstall, additional applications can be deployed on our powerful server without the need to purchase anything extra. The total cost for using AutoInstall over 2 years is $3700, over 5 times lower!

As it is clear, our solution using the box and the AutoInstall project significantly reduces the cost of the company for a given infrastrcutre. Additionally, our costs do not increase with the increase in users. Before buying the box, you can also evaluate the service on a VM for free to ensure that you are getting the right solution.



Conclusion

Consulitar is a big believer in driving business value through technology. Our values include simplicity, efficiency, and doing good for the technology community. All our core functionality is open source to ensure that companies don't have to pay extra for stuff they don't need. It also enables other developers to create more applications that drive value.

We want to ensure that SMBs or people without technology experience are not left behind, and we use automation to take care of the ugly stuff. Our variety of options put the power in the consumer's hand to pick the option they want at a disruptive price. If you are a customer who cares about security and on-premise storage, you have the option to purchase the box. If you want to take advantage of the cloud without the complexities, you can implement our solution on the cloud. If you prefer the traditional managed services approach, we can host your infrastructure for you.

We also believe in social entrepreneurship, where doing business and doing good are not mutually exclusive. Unlike some companies that take advantage open-source for commercial gain without contributing anything back (Chan, 2018), part of our proceeds are donated to all the companies whose open-source softwares are used in AutoInstall. Unlike the big consulting companies, we cater to businesses of all sizes and help customers use technology better using automation.

With a great team that is capable of automating complex tasks into a click of a button, and a product that was born out of a need, Consulitar's consulting and AutoInstall services are the best solution for SMBs currently in market. To receive your free personalised quote, you can email us or give us a call using the contact information on the website.

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