

TCO & Benefit analysis

In premise Email setup v/s a
Fully managed cloud Email
setup (saas) for 1000 users

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Goals

The goals of the proposed email setup, so that the two architectures, in premise and cloud, are designed to deliver on these goals.

Number of users	Architecture sizing supports a user base in this range	Quantity	1000
Uptime required	System should be extremely reliable (RTO=near zero)	%	99.9
Data Durability	Data should be safe, secure and extremely durable (RPO=0)	%	100

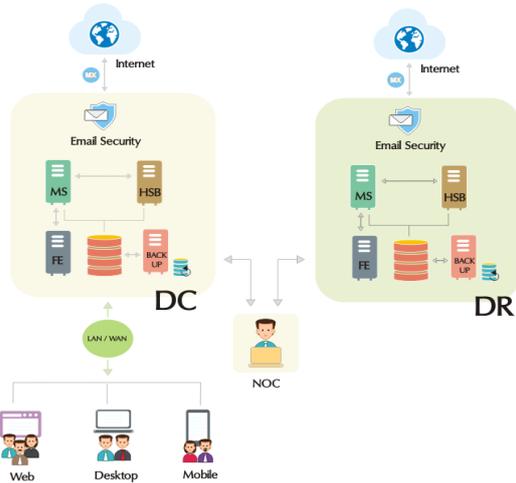
Basic Assumptions

For the sake of computing in premise equipment cost, the following assumptions have been made. These are inline with Industry standards

AMC	Maintenance price per year as a percentage of original price	%	20
Life of equipment	Period after which, equipment needs refresh	years	5

In Premise Architecture and Total Cost of Ownership

The image below represents an ideal in premise architecture to come close to achieving the goals of the setup. The table below the image represents the total annual cost of running a setup of this architecture.

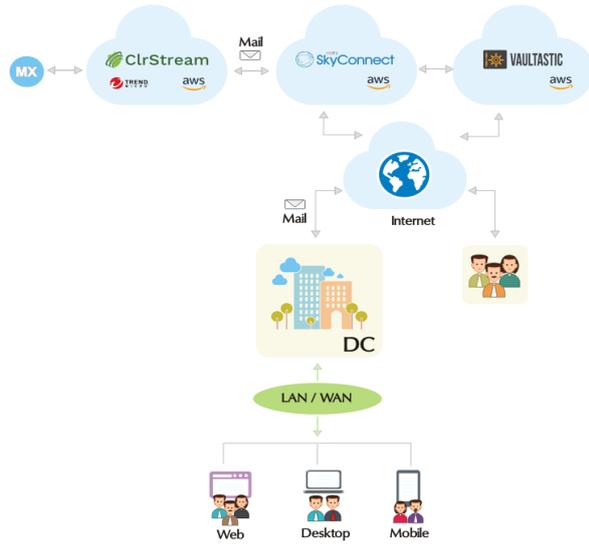


Site	Component	Annual recurring cost (opex)	Description
Primary Site Infrastructure	1 Mail server	189000	Active mail server receiving and storing mail.
	1 redundant mail server (Passive Hot standby)	189000	To cluster the mail server for redundancy to handle local mail server failures
	1 Front End Server	151200	Users access the services via this server
	SAN Storage volume	12600	Mails are stored on this
	Backup system	226800	Periodic backups to secondary medium
	1 Email security Gateway	113400	Mails are scrubbed for malware through this appliance
	Data center costs	210000	Running cost per year to host the equipment
DR site Infrastructure	Bandwidth costs	525000	Cost of b/w for mail flow and mail access
	1 Mail server	189000	Active mail server receiving and storing mail.
	1 Front End Server	189000	Users access the services via this server
	SAN Storage volume	12600	Mails are stored on this
	1 Email security Gateway	113400	Mails are scrubbed for malware through this appliance
	Data center costs	210000	Running cost per year to host the equipment
Services	Bandwidth costs	350000	Cost of b/w to replicate data continuously
	24/7 NOC to monitor Primary and DR site	1890000	NOC team to ensure uptime
	L1 helpdesk Team	945000	Team to provision users, set policies, study reports etc
Software Costs	Digital eyes and ears (monitoring)	52500	Automated monitoring for resources at both DCs
	Operating System for 5 servers across both sites	279650	Subscription for Red Hat Linux OS for 2 Mail servers, 2 redundant mail servers, 1 front end server
	Mithi Connect Xf	525000	Subscription for Mithi's Connect Xf enterprise email software
	TOTAL	6373150	INR
	Effective per user per year rate	6373	INR

Note: To get to the working of each of the above costs, please refer to the Annexure at the end of this document.

SaaS on cloud Architecture and Total Cost of Ownership

The image below represents a cloud based SaaS solution architecture which achieves the goals and delivers strong benefits beyond that too. The table below the image represents the total annual cost of running a setup of this architecture.



Site	Component	Annual recurring cost (opex)	Description
Infrastructure	Bandwidth costs (3 MBPS)	210000	Cost of b/w for mail access
Services	L1 Helpdesk team	945000	Team to provision users, set policies, study reports etc
SaaS	Mithi SkyConnect SaaS cloud service	770000	Subscription for Mithi's Connect Xf enterprise email software
	TOTAL	1925000	INR
	Effective per user per year rate	1925	INR

Note: To get to the working of each of the above costs, please refer to the Annexure at the end of this document.

The Cost Comparison

The table below suggests your cost areas while running an email setup. Observe that for a cloud setup all the factors are included as part of the service offering and also guaranteed.

	In Premise Email Setup	Cloud Email Setup	
Effective per user per year cost	6373	1925	INR
Cost Model	Capex + Opex	Opex	
Infrastructure	At your cost, which varies with your goals	All inclusive and fully managed, rate fixed at whatever your size of deployment	
Reliability/ Availability	At your cost - A MASSIVE DESIGN EFFORT, which must consider DATA SAFETY, UPTIME, DATA DURABILITY, and DISASTER RECOVERY site	All inclusive - GUARANTEE of 99.9% UPTIME & DATA DURABILITY of 99.999999999%, and DR INCLUDED	
Security	At your cost - SECURITY NEEDS SPECIAL EFFORT to consider PHYSICAL SECURITY, DATA SECURITY, EMAIL SECURITY, NETWORK SECURITY, and ongoing maintenance	ALL INCLUDED WITH THE SERVICE. All you have to do is configure your email usage policies	
Scalability	At your cost - A CHALLENGE when considering UPGRADING, SCALING, via long purchase and deployment cycles	INCLUDED WITH THE SERVICE. WE GROW WITH YOU	

The Benefit Comparison

The table below shows that besides being lower cost, how a cloud email service offers a plethora of benefits, which future proof your investments and are totally de-risked from lock in contracts, aging assets, management issues, etc

		In Premise Email Setup	Cloud Email Setup
Delivery Model	Responsibility	You deploy and maintain the infra and application using your internal resources	Fully managed, SLA backed service, ready for you to simply consume.
	On-boarding	Procure equipment, deploy, test, optimize, manage and maintain all of which can take a long time to get started	Get started immediately. Provision your setup in less than a day and you can start consuming.
Infrastructure	Responsibility	YOU PROCURE, PROVISION and MAINTAIN	ALL INCLUDED WITH THE SERVICE. ZERO INFRA, ZERO MANAGEMENT, ZERO MAINTENANCE AT YOUR END
	Data center	Not feasible (and also not your business goal) to invest in converting your DC to tier 4 level reliability, getting certified at multiple levels, building in power and cooling redundancies, and more.	AWS Cloud DC is carrier grade, multi region, with multiple certifications, built in redundancies and multiple physical Availability zones in one region. Certified from ISO, CMM, CERT etc for various parameters and compliance
	Provisioning	*Needs upfront provisioning even for future workloads. Can get wasted if there is a downsize.	* No upfront provisioning required * Simple monthly billing as per consumption = pay as you go, pay per use, grow/shrink anytime. * No fixed contracts, cancel anytime with no liability.
	Technology refresh	*Fixed, static technology for a period of 5 years *During a refresh, these become dead assets. *No easy upgrade without risk or major downtime	*Infra automatically renewed/updated by cloud provider ensuring that our solution is always on a high performance & latest platform
	Scalability	* Scaling is not easy due to long procurement cycles * Scaling often requires a rearchitecture, leading to downtimes, risk of data loss and drop in productivity.	*Allows us scale up/down/out with ease at the click of a button *Elastic infinite cloud storage, means no upfront provisioning and no projected need. Scales on demand
Reliability/ Availability	Responsibility	A MASSIVE DESIGN EFFORT FOR YOU	GUARANTEE of 99.9% UPTIME & DATA DURABILITY of 99.99999999%, and DR INCLUDED WITH THE SERVICE
	Uptime	*Reliability and Redundancy has to be built into the infrastructure and application by careful planning, provisioning of extra resources and automated or manual processes	*Infrastructure guaranteed at 99.9% uptime by AWS. *Application designed with redundancy, auto scale, hierarchical storage and more to deliver on uptime promise
	Data Safety and Durability	*Data Durability goal needs redundancy in storage, strong frequent backups, and sync to DR Site. * Needs a separate backup system copy critical data periodically from the mail server. Reliability of this system also has to be factored in, leading to higher costs And yet, this can almost NEVER achieve an RPO of zero.	*Cloud storage provides a data durability of 99.99999999% allowing the solution to provide an RPO of zero *Thanks to extreme data durability offered by cloud storage, backup of the data is built into the architecture
	Monitoring and NOC	You need to deploy automation tools to monitor service and infrastructure uptime and also provision a 24/7 team to work in shifts to monitor and maintain the setup.	Mithi uses a combination of digital eyes and ears along SOPs, and a well trained 24/7 NOC maintain uptime.
	Disaster recovery	*DR site has to be provisioned to achieve goals of 99.9% uptime	*DR built into the architecture. By over provisioning using the availability zones for our infrastructure, helps us deliver on our guaranteed promise of 99.9% application uptime.
Security	Responsibility	Thanks to mounting cyber security attacks/threats, SECURITY NEEDS SPECIAL EFFORT BY YOU	ALL INCLUDED WITH THE SERVICE. All you have to do is configure your email usage policies
	Infrastructure security	*Physical security of the infrastructure has to be planned, built in and monitored.	* Infrastructure secured by cloud provider to ensure privacy and safety of the resources
	Data Security	*Data has to be stored encrypted with controlled limited access. You need to design this into your info sec working.	* Encryption of data, access control, mail usage policy control built into the infrastructure.
	Email Security	*A gateway mail solution (scrubbing) has to be deployed	* Integrated high performance guaranteed Mail scrubbing service (in partnership with Trend Micro HES) to detect malware.
	Network Security	* Have to design and build in WAFs, Intrusion detection systems, Attack mitigation systems, TLS, etc	* Resources secured at multiple layers with IAM, authentication, VPCs, WAFs, Firewalls, TLS and more
	Data Ownership	* Data is captive within your own physical environment	* Even though the data is stored on the cloud, the data is entirely yours and you can take the data whenever you want using multiple ways to download the data. We don't own or control your data.
Ongoing Infra security	* Regular VAPT and other analysis needs to be done to ensure hygiene	* Part of the IaaS	
Scalability	Responsibility	A CHALLENGE FOR YOU	INCLUDED WITH THE SERVICE. WE GROW WITH YOU
	Scale up/out	Upgrading or scaling out the hardware, need to go through the long purchase cycles since they are capex.	At the push of a button, we can provision larger instances, more storage and scale geographies.
Application Refresh	Responsibility	AN OPERATIONS CHALLENGE FOR YOU	INCLUDED AND AUTOMATIC WITH THE SERVICE
	Updates/Upgrades	Upgrade deployments are typically delayed to avoid downtimes and stay away from change, leading to the customer using older versions and losing out on the benefit of the newer versions.	Continuously upgraded to ensure that the customer is always using the latest capabilities

Conclusion

A cloud Solution delivers on the solution goals, while being 1/4th to 2/3rd the price of a comparable in-premise solution. In addition, it also delivers multiple other benefits of security, scalability, upgradability, etc, which make it a compelling value proposition.

Annexure

This page shows the working for the costs of each element used to build the architecture.

Number of users	Architecture sizing supports a user base in this range	Quantity	1000
AMC	Maintenance price per year as a percentage of original price	%	20
Life of equipment	Period after which, equipment needs refresh	years	5
USD Rate	Rate per USD as on Dec 2018	INR	70
Currency choice	Change this for the sheet to show all figures in the right currency	string	INR
Bandwidth	Per MBPS	1 MBPS	70000

Components of an In premise Setup

The below mentioned components can be used to build an in premise architecture. The last column represents the annual cost of the component, mapped to an opex model.

Components	Description	Currency	Year 1 (Capex)	Year 2 (AMC/Subsc)	Year 3 (AMC/Subsc)	Year 4 (AMC/Subsc)	Year 5 (AMC/Subsc)	Ave Annual (Opex)
Mail Server	Purchase price	INR	525000	105000	105000	105000	105000	189000
Front End Server	Purchase price	INR	420000	84000	84000	84000	84000	151200
SAS Storage on a SAN	Need 1TB of live store. Purchase price 500 USD per TB = 500 USD	INR	35000	7000	7000	7000	7000	12600
Backup	Tape system and software, purchase price	INR	630000	126000	126000	126000	126000	226800
Email security gateway	Mail scrubbing appliance to scan all inbound email for virus/spam/malware, etc. This cost assumes a subscription of USD 4.5 per user per year	INR	315000	63000	63000	63000	63000	113400
Data center	Cost of hosting the equipment, cooling, power, security etc	INR	210000	210000	210000	210000	210000	210000
Digital Monitoring	Cost of tools to monitor the equipment 24/7 using automation	INR	52500	52500	52500	52500	52500	52500
Access Bandwidth	Cost of Internet bandwidth consumption, for inbound mail flow and access to the in premise servers for roaming users. This is approximately 30 mbps across all devices and locations with average assumptions of consumption patterns (peak hours etc)	INR	525000	525000	525000	525000	525000	525000
Replication Bandwidth	Cost of Internet bandwidth to replicate data from Primary site to DR Site. Assuming a 5 MBPS dedicated pipe.	INR	350000	350000	350000	350000	350000	350000
NOC team 24/7	2 people working 3 shifts over 24/7. Assumes a cost of 375 USD per person a month including salary and overheads	INR	1890000	1890000	1890000	1890000	1890000	1890000
Day administrator	1 person working 2 shifts over 12 hours. Assumes a cost of 375 USD per person per month including salary and overheads	INR	945000	945000	945000	945000	945000	945000
Mithi Connect Xf Mail server software	Cost of licensing the mail solution software to be deployed on the servers. Have assumed Mithi's Connect Xf software, whose price has been taken as 7.5 USD a user a year. NOTE: This does NOT include Chat and Calendar modules	INR	525000	525000	525000	525000	525000	525000
Operating System	Cost of licensing the Red Hat Linux operating system software with support to be deployed on the servers. Price per server.	INR	55930	55930	55930	55930	55930	55930

Components of a SaaS Cloud setup

The below mentioned components are required to consume a SaaS cloud email service. The last column represents the annual cost of the component, mapped to an opex model.

Mithi SkyConnect cloud SaaS subscription	Cost of licensing the mail solution software to be deployed on the servers. Have assumed Mithi's Connect Xf software, whose price has been taken as 11 USD a user a year. NOTE: This does NOT include Chat and Calendar modules	INR	770000	770000	770000	770000	770000	770000
Day administrator	1 person working 2 shifts over 12 hours. Assumes a cost of 375 USD per person per month including salary and overheads	INR	945000	945000	945000	945000	945000	945000

Note: The above prices have been derived via online research, our own pricing tables and our experience of the Industry. We believe that even if you do detect a variation, it may not be drastic. Hence for the sake of comparison built out in this document, we believe these should suffice. However, feel free to play around and get your own numbers in.