www.federizer.org

Living document
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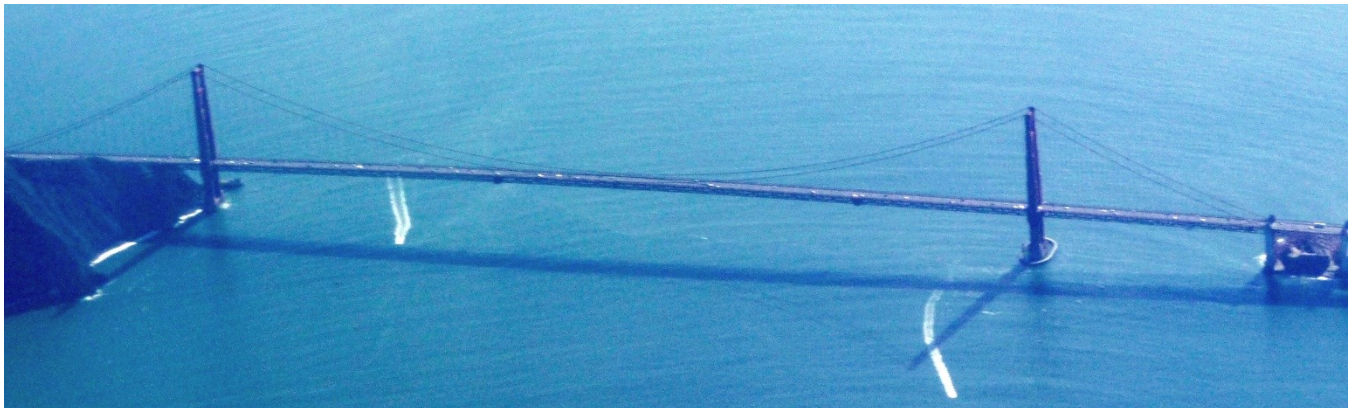
Federizer

Welcome to the next-generation email system



Abstract

Federizer is the next-generation cloud-native email system aligned with emerging and future business needs. It is a replacement for the current email system that no longer meets security standards and functional requirements.

Introduction

The main components of the email system have been designed between 1971 and 1992 by many inventors. In the course of time, email has become the most commonly used application of the Internet. Nowadays the email infrastructure forms the backbone of the worldwide digital identity, and email is the only truly federated communication system of the Internet.

Problem

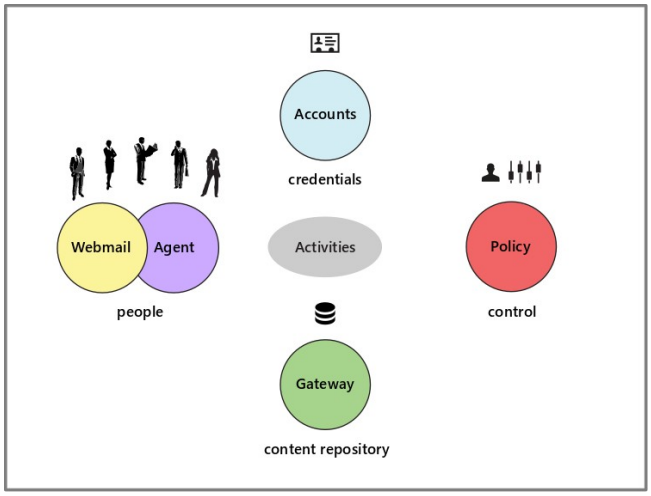
Despite the rising importance of email infrastructure, the whole ecosystem still relies on over 40 year-old architecture and protocol design. There are spam and attachment issues from the very beginning. Even though the main email system vendors and service providers claim email accounts to be safe, the fact remains that major security and functional flaws are not fixed. The email system, while conceptually sound as a communication means, is structurally obsolete and functionally deficient.

Solution

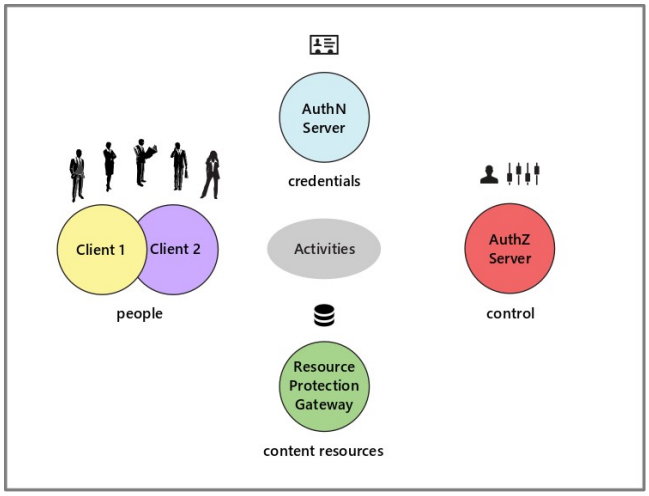
This concept adopts the cloud-native approach that aligns with emerging and future business needs. The design model incorporates Privacy by Design principles to maintain the appropriate level of regulatory compliance. The cloud-native email system concept is built on top of globally distributed Domain Name System, Web technologies and loosely coupled, Domain Authentication Layer. The Domain Authentication Layer is built around OAuth 2.0 specification and includes Resource Protection Gateway in order to control information exchange between security domains. The messages and attachments are stored separately in the content repository and likewise, the content is transferred separately. Repository uses a virtual file system and data are transferred using JMAP and SMTP over gRPC/Protocol Buffers system. Documents are stored on disk or S3 compatible object storage and transferred using HTTP/2 protocol.

Architecture

Generic Model



OAuth2 Model



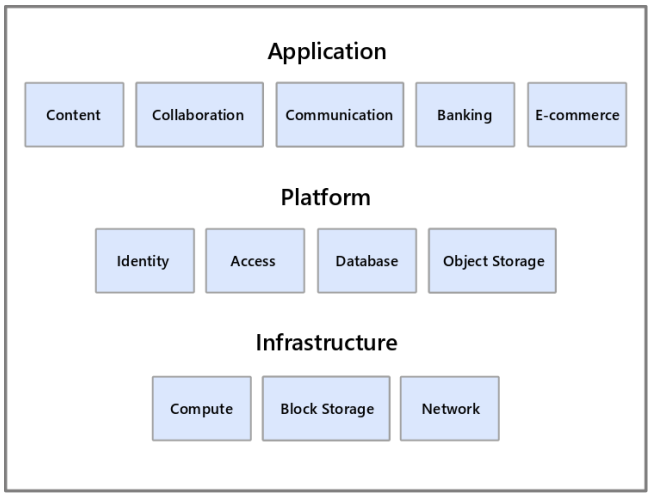
Cloud-Native Services

1. Email services
    a. No spam – user invitation/subscription system guaranties no spam in the Inbox
    b. Mail tracking & proof of delivery – similar to registered/certified mail with revocable consent
    c. Reference numbers – channels, threaded conversations
    d. Time management – calendaring, events, to-do, reminders, etc.
    e. No attachments size limit – attachments are transferred separately without size limit
    f. Attachments versioning – attachments with the same content are versioned
    g. Attachment properties – e.g. invoice due date, total due, variable symbol, status
    h. Public/Private Tags – empower teamwork across the business
    i. Cover Tags – documenting data to provide descriptive information
    j. Cover Sheet – visualize Cover Tags to handle information effectively
    k. Instant messages – deliver messages within seconds
    l. Instant attachments – download attachments even before they are actually delivered
    m. Security – easy integration with antivirus and antimalware protection systems
    n. Privacy – distributed nature of Federizer has intrinsic privacy-preserving properties
2. Banking services
    a. Internet payments – make payments directly within the Federizer application
    b. Multi-bank information – overview of all account information consolidated in one place
3. Real-time communication services
    a. Document collaboration – share document with people and edit it together in real-time
    b. Video conferencing, direct file transfer, voice, chat – context-aware communication
4. Dynamic content services
    Workflow, document/forms automation, AMPHTML for email format, HTML/SVG forms – dynamic and interactive content, EDI transactions
5. Internet of things services …

Cloud Computing vs Edge Computing

Federizer is a cloud-native system that can be deployed on public, private or hybrid cloud, and as a complex email system, naturally fits microservice architecture. This allows customers to use all benefits of the cloud technology, to help reduce capital cost (CAPEX -> OPEX), divest infrastructure management and focus on core business.

High-Level Architecture on Cloud



Kubernetes

Kubernetes-native system

Cloud as a Competitive Advantage

1. Reduce capital cost: CAPEX to OPEX
2. Agility & Resilience
3. Clone, build, deploy
4. Scale up, scale down

Cloud Computing Issues

1. Privacy
2. Compliance
3. Legal
4. Vendor Lock-in

Data privacy, compliance and legal issues are solved running Federizer on premises or on local, trusted cloud provider. Avoid client-side encryption due to Full-Text Search problems. Do not use the cloud providers' proprietary services. Use Kubernetes as a vendor agnostic platform.

Email Client

The Progressive Web Application (PWA) technology is recommended for front-end webmail client development. PWAs are easy to install and allow users to utilize the cloud-native email system to its full potential.

Taxonomy

To highlight the underlying difference between email and Federizer use a new Federizer taxonomy. Endorse the Federizer term.

New Features

1. Unlimited attachment size
2. Tagging system
3. Groups/Channels (mailing lists)
4. No email spoofing
5. Integrations with external systems (API)
6. Cloud-native architecture
7. Email archive

Value Proposition

1. Extended Email Services (track & trace, proof of delivery)
2. Content Repository (digital archive, no attachments size limit)
3. Ad-Hoc Workflow (order fulfillment, approvals, …)
4. Enhanced Information Management (public/private tags)
5. ~~Dynamic & Interactive Content (electronic forms, …)~~
6. Security & Privacy (no spam, secrecy of letters)
7. Chat via Mailboxes (real-time communication)

Credo

Anyone can run its own cloud-native email system.

Tagline

Cloud-native email system without borders.

Breakthrough Ideas

1. Synergy between data and (human) communication.
2. Handle content in the context of activity.
3. Naturally archived content in the context of activity.

Numeronym

f7r

Use Cases not covered by the current email system

1. Basic use case – centralized content repository, exchange digital assets; plan, execute and track (business) activities.
2. Manufacturing/Engineering – product design and development, store and exchange product specifications.
3. Legal – contracts and proposals creation, store and exchange contracts.
4. Digital Media – store and exchange rich media.
5. Sales & Marketing – track sales and marketing activities, store and exchange digital assets.

Target Market

According to the 2017 study from the Radicati Group, the number of worldwide email users, including both business and consumer users, will grow from over 3.7 billion in 2017 to over 4.1 billion by 2021. Email use continues to grow in the business world where it is often used not only simply as an interpersonal communication tool, but also as the default choice to send files. That is a lot of B2B and B2C relationships to generate leads to grow the business.

Competitive Trends

Although instant messaging, social networking, chat, and enterprise file sharing and synchronization systems are seeing strong adoption, centralized systems are not very acceptable solutions for B2B and B2C communication. Missing Identity and Access Management integration on both communication sides can lead to potential privacy issues such as leakage of intellectual property or loss of confidential content and makes these systems incompatible with enterprise security policies.

Competitive Advantage

Ease of use - everyone who uses a computer knows how to use email client, there is no need for Federizer users to take a Federizer training course.

Unfair Advantage

A loosely coupled federated AAA system layer specification: Intellectual property rights of the Specification Lead.

Business Model

Federizer is based on open source software:

1. Offer a range of support plans to help organizations use Federizer to deliver a secure and reliable communication service. Pricing is either $?,000 or $??,000 per server per year for two different support plans.
2. Offer a paid dedicated support for a fee.
3. There is an opportunity to build a business model on global and/or regional Federizer services à la Gmail.
4. Monetize the platform API (how?)
5. Cloud provider partnerships

Marketing and Sales

Partners, Network effect / Word of mouth.

Market Opportunities

1. Enterprises
2. Associations
3. Providers
4. Universities (free)

Strategic Partnership

Build a strategic relationship with one of the top cloud providers and/or email providers to ensure alignment of visions, goals and objectives, and to drive product adoption.

Cost Structure

Developers, analysts, support …

Exit

Linux Foundation - Ecosystem Steering Group / Technical Steering Committee

Conclusion

Federizer can play an important role in communication across various industries in the public and private sectors. The combination of repository, communication and identity represents a single point of information throughout any organization, and symbolizes a gold mine of information for any individual. The Cloud-Native Services approach predestine Federizer to become more than a replacement of traditional email system.