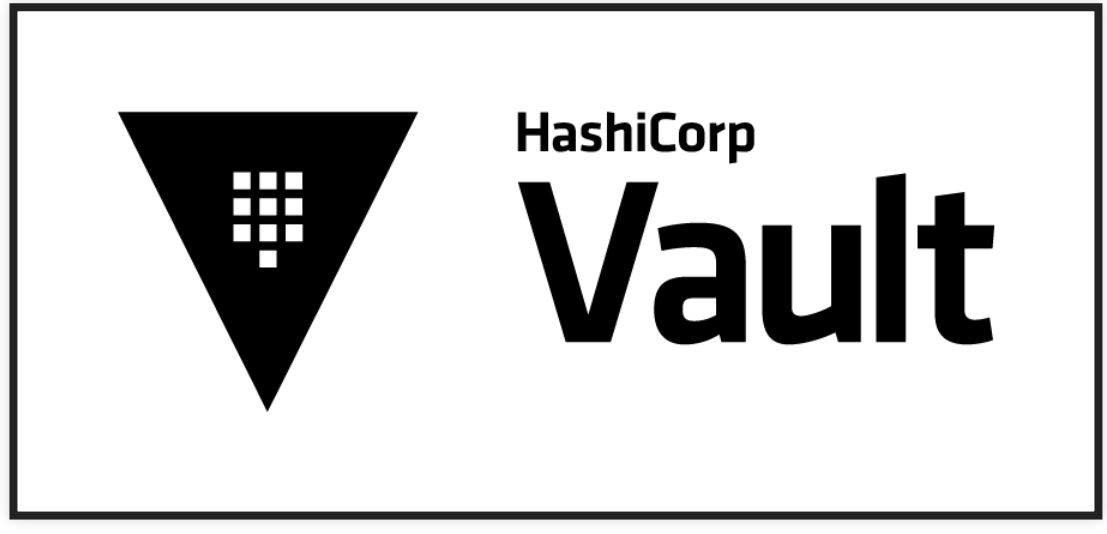

CREDENTIAL STORE

MAYANK PATEL

APPLICATION ARCHITECT @ OILDEX

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OILDEX

SOFTWARE AS A SERVICE PROVIDER FOR OIL AND GAS COMPANIES

- 7.5 Years

FOCUSED ON

- Streaming, Reactive, Non-blocking Architecture
- API Design
- DevOps
- Cloud Native Architecture
- Empowering software development teams
- Digital Transformation and Digital Optimization

AGENDA

- Common Challenges
- Vault Use Cases & Features
- Demo

Common Challenges / Problems we are trying to solve?

Credentials stored & transmitted in Plaintext format

Credentials almost never get renewed once it is issued or manual renewal

No PKI Certificate Management

API Keys are hand generated and never renewed

No SSH Key storage

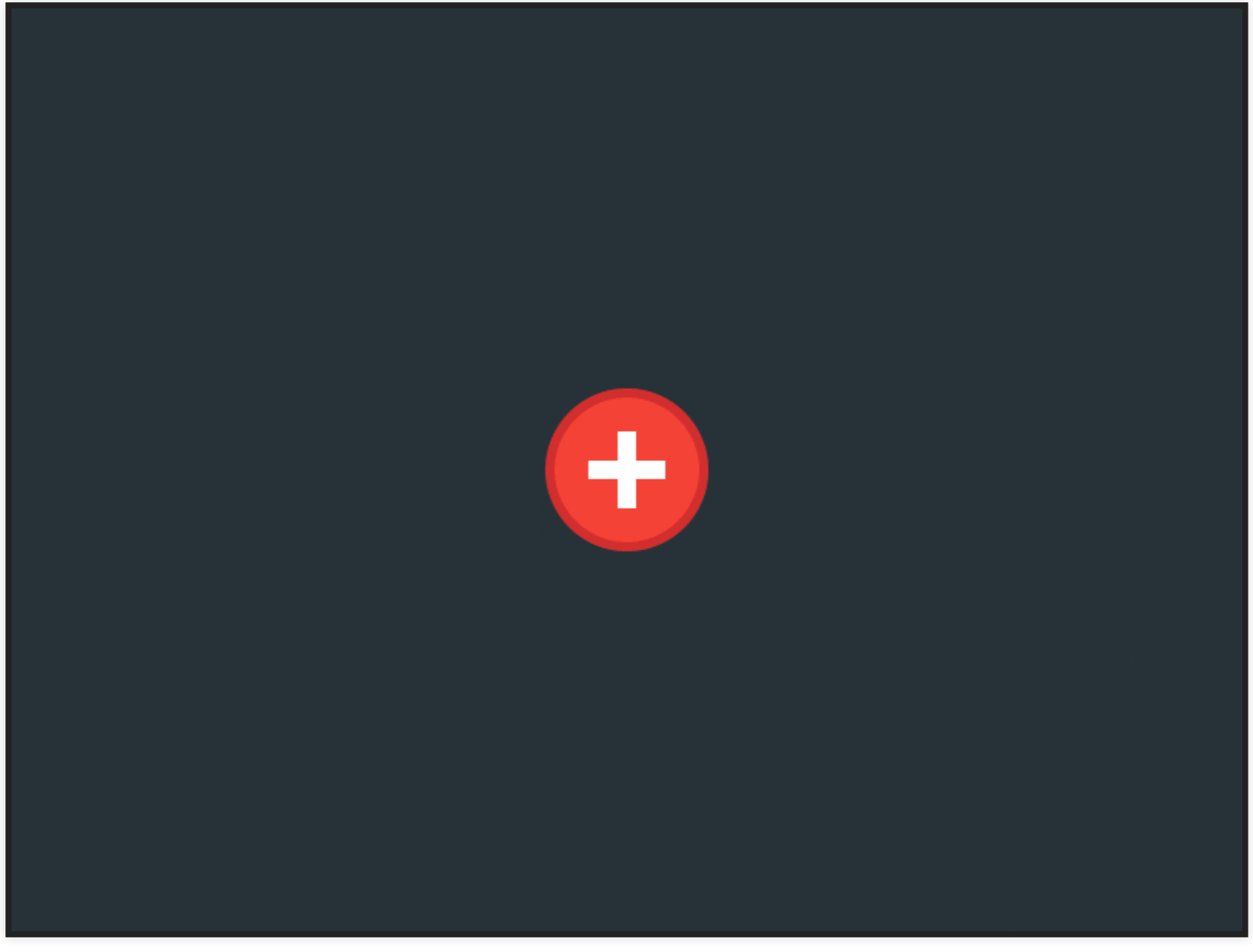
No Audit Control

No Kill Switch

Lack of automation for secrets deployment

MANY MORE...

How do we manage credentials in Cloud Native, Distributed Infrastructure ?



VAULT USE CASES

Secret Management

Encryption as a Service

Identity and Access Management

Secure Credential Management on a Budget

VAULT FEATURES

- Secure Secret Storage
- Dynamic Secrets (Secret as a Service)
- Data Encryption
- Leasing and Renewal (Key Rotation)
- Revocation
- Audit Control
- Integration with wide variety of Databases and Tools
- Custom Plugin

SECURE SECRET STORAGE

- Basic Credentials
- Tokens, TOTP
- PKI Certificate Management (It’s easy to be your own certificate authority)
- LDAP
- SSH Keys
  - Handle SSH logins across the org.
  - One time SSH access
  - It increases the usefulness of audit logs during incident response
- ...

DYNAMIC SECRETS

AWS	Cassandra	Consul	Hana
MariaDB	MongoDB	MSSQL	MySQL
Oracle	PKI Certificates		PostgreSQL
RabbitMQ	SSH	Transit	Custom..

WHY DYNAMIC SECRETS?

Dynamic passwords provide a bunch of benefits

No need to write down, store, or share passwords

Enables very short lived passwords, less exposure if compromised

For distributed applications, every instance gets unique credentials

Constantly changing and expiring
usernames/passwords are much harder to brute force

Automatic password rotation/expiration

Better audit trail

HTTP API/CLI

Integration

- consul-template
- Envconsul
- HashiCorp Vault Jenkins plugin
- Native Client Libraries
- Integration with Ansible, Chef, Puppet, Salt, etc.

Vault makes following best practices the norm

1. No credentials are in your code base
2. Credentials are not shared
3. Credentials are short lived
4. Credentials are easily revoked

RESOURCES

- Vault-Consul Docker Swarm Cluster
- Denver HashiCorp User Group Talk - Credential Store using Vault
- awesome-vault-tools
- Vault Demo Console

THANK YOU!

QUESTIONS?

You can contact me at:

Linkedin / @maxy_ermayank / Medium