

Introduction to AWS Certificate Manager (ACM) Private Certificate Authority (CA)

(0515-SID)

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Agenda

Background and use cases

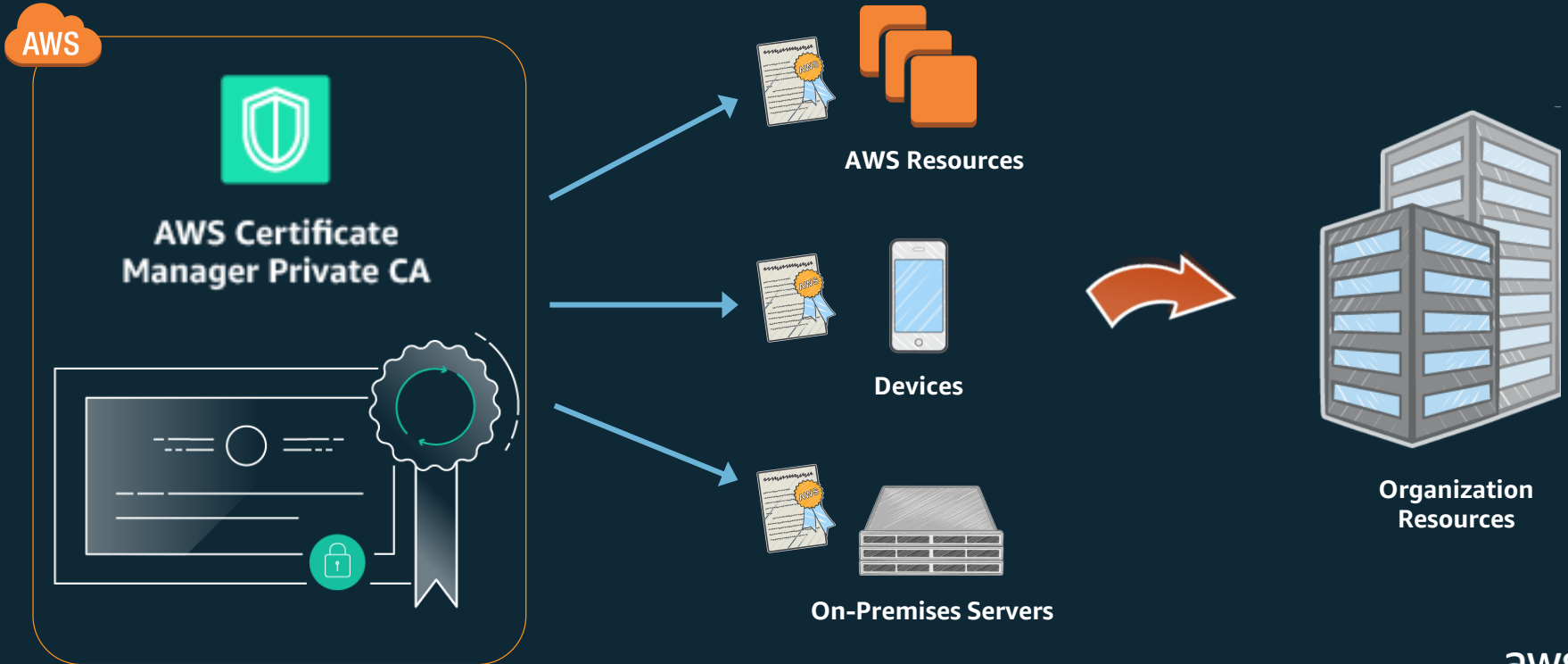
Demo

Benefits and features

Pricing and regions

Wrap up

Introducing ACM Private Certificate Authority (CA)



Why Use SSL/TLS Certificates?

- Identify a website or application over TLS/SSL
- Secure network communications
- Browser users see a lock icon

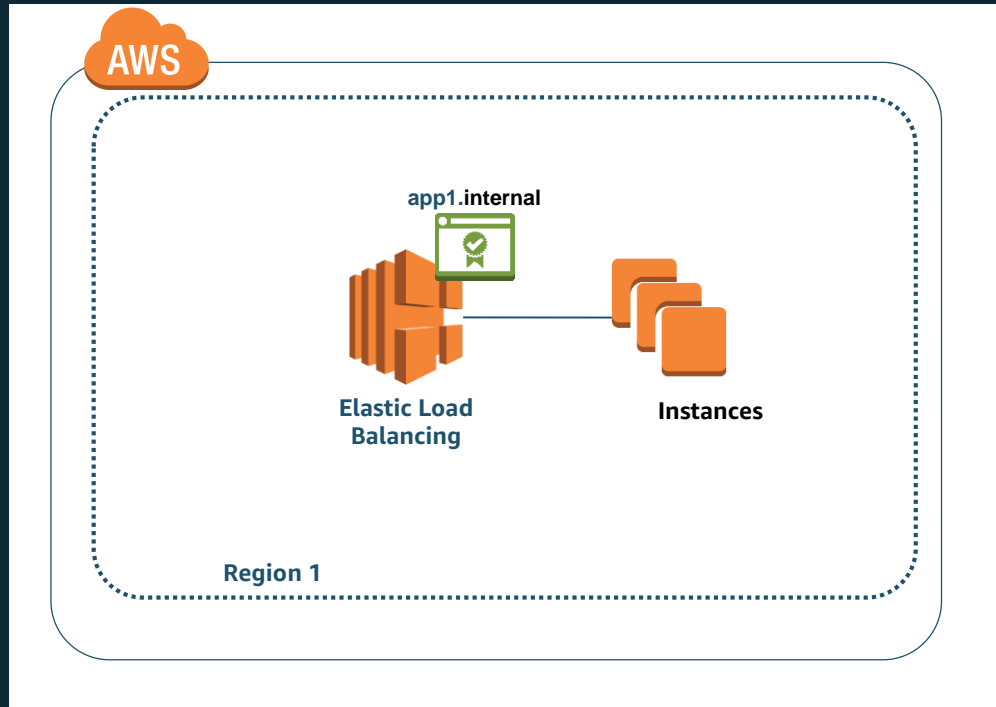


Use Cases

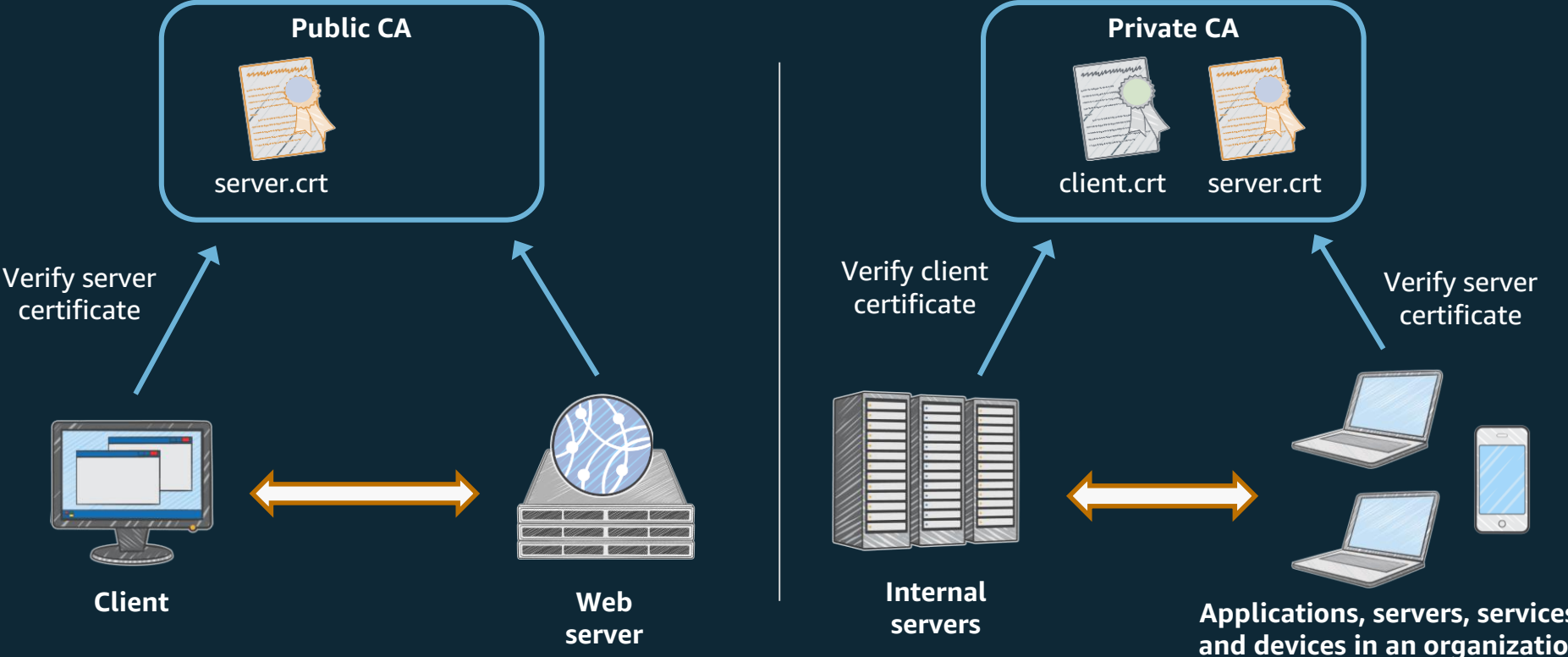
When to consider using ACM Private CA

- Server certificates
 - Private certificates to identify internal servers
 - EC2, ECS, or on-premises servers: e.g. Apache, Tomcat, NGINX
 - With AWS ELB, CloudFront, API Gateway
- Client certificates
 - Second factor for API access
 - TLS mutual authentication for server-server communication
- Replacement for self-signed certificates
- IoT device certificates

Elastic Load Balancing



Public vs. Private Certificate Authority



Challenges of Operating Private CAs

Maintaining private CAs is **complex** and **expensive**

Organizations are responsible for security, accountability, and availability of their private CAs

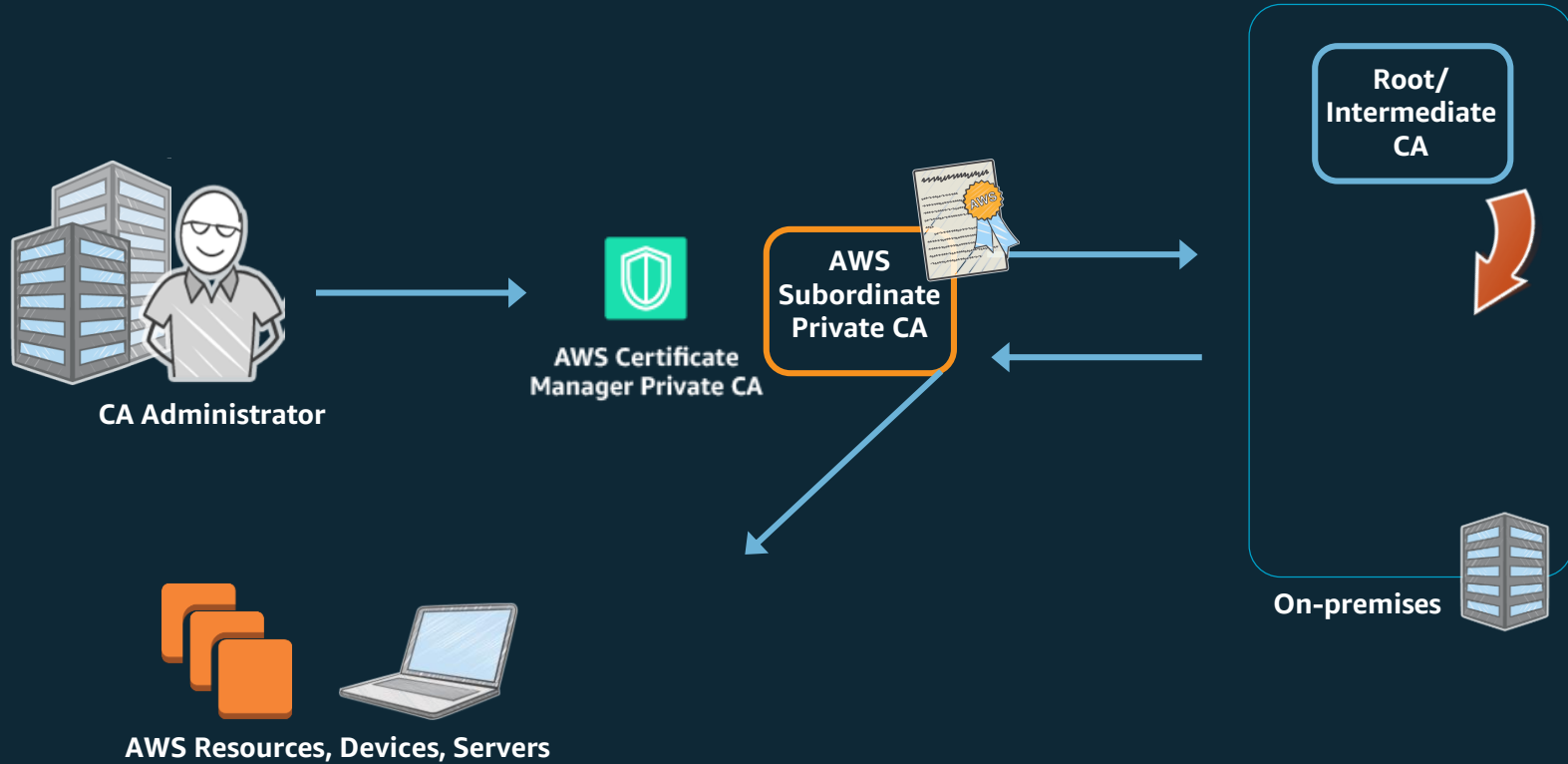
Private CAs require infrastructure and security expertise

Operating multiple CAs further increases complexity

Challenges of Certificates for Dynamic Resources

- Problem: Need to identify dynamic cloud resources
 - Autoscaling, CloudFormation, automation
- Enterprise private CAs
 - Slow, inflexible, manual processes hamper agility
- Solution
 - Secure, API-driven private CA service for issuing certificates and vending revocation info

Getting Started with ACM Private CA



Certificates

Certificate Manager

Private certificate authority

Private CAs

Certificates



Request a certificate

Import a certificate

Actions



« < Viewing 1 to 10 of 21 certificates > »

<input type="checkbox"/>		Name	Domain name	Additional names	Status	Type	In use?	Renewal eligibility
<input type="checkbox"/>	▶		test.test		Issued	Private	No	Eligible
<input type="checkbox"/>	▶		test.test		Issued	Private	No	Eligible
<input type="checkbox"/>	▶		test.test		Issued	Private	No	Eligible
<input type="checkbox"/>	▶		test.test		Issued	Private	No	Eligible
<input type="checkbox"/>	▶		test.test		Issued	Private	No	Ineligible
<input type="checkbox"/>	▶		test.test		Issued	Private	No	Eligible
<input type="checkbox"/>	▶		test.test		Issued	Private	No	Eligible
<input type="checkbox"/>	▶		*.p95.co	*.server.p95.co, www.p95.co, www.server.p95.co	Expired	Amazon Issued	Yes	Eligible
<input type="checkbox"/>	▶		test3.p95.co		Expired	Amazon Issued	Yes	Eligible
<input type="checkbox"/>	▶		p95.co	www.p95.co	Expired	Amazon Issued	Yes	Eligible

« < Viewing 1 to 10 of 21 certificates > »



AWS services

Find a service by name or feature (for example, EC2, S3 or VM, storage).

Recently visited services



All services

Build a solution

Get started with simple wizards and automated workflows.



Launch a virtual machine

With EC2
~2-3 minutes



Build a web app

With Elastic Beanstalk
~6 minutes



Build using virtual servers

With Lightsail
~1-2 minutes



Connect an IoT device

With AWS IoT
~5 minutes



Start a development project

With CodeStar
~5 minutes



Register a domain

With Route 53
~3 minutes

[See more](#)

Learn to build

[See all](#)

Learn to deploy your solutions through step-by-step guides, labs, and videos.

Websites



3 videos, 3 tutorials, 3 labs

DevOps



6 videos, 2 tutorials, 3 labs

Backup and recovery



3 videos, 2 tutorials, 3 labs

Helpful tips



Manage your costs

Get real-time billing alerts based on your cost and usage budgets. [Start now](#)



Create an organization

Use AWS Organizations for policy-based management of multiple AWS accounts. [Start now](#)

Explore AWS

Amazon Relational Database Service (RDS)

RDS manages and scales your database for you. RDS supports Aurora, MySQL, PostgreSQL, MariaDB, Oracle, and SQL Server. [Learn more](#)

Real-Time Analytics with Amazon Kinesis

Stream and analyze real-time data, so you can get timely insights and react quickly. [Learn more](#)

Get Started with Containers on AWS

Amazon ECS helps you build and scale containers for any size application. [Learn more](#)

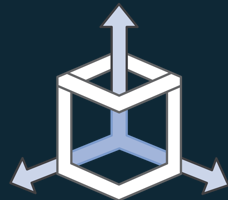
AWS Marketplace

Discover, procure, and deploy popular software products

Benefits



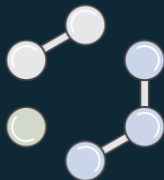
Secure and Managed
Private Certificate Authority



Manage Certificates
Centrally



Enable Developer Agility




Flexibility to Customize
Private Certificates



Pay as You Go Pricing

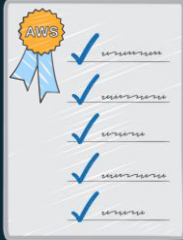
Secure Managed Private CA



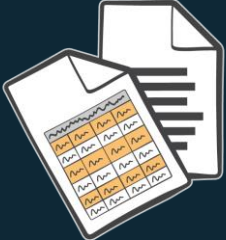
Hardware Security Modules



IAM Policies for Access Control

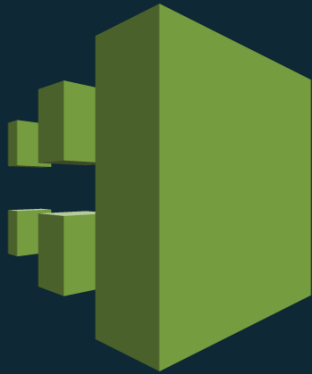


Certificate Revocation List



Generated Audit Reports

Logging with AWS CloudTrail



**AWS
CloudTrail**

- Record API calls that are made to and from ACM Private CA
- Must have permissions to write to an Amazon S3 bucket
- API calls from the ACM Private CA console, AWS CLI, or from AWS SDKs are collected

AWS Certificate Manager (ACM)

ACM makes it easy to **provision**, **manage**, **deploy**, and **renew** SSL/TLS certificates on the AWS Cloud



ACM Certificate Lifecycle Management



- Provides a single interface to manage both public and private certificates
- ACM-managed certificates renew and deploy automatically with ACM-integrated services
- Protects and stores private keys used with certificates via best practices
- API hooks to let you export and deploy private certificates from your code

Customized Certificates



Custom Lifetimes



Custom Resource Names



Private Certificate

Key Algorithms	Signing Algorithms
RSA_2048	SHA256WITHECDSA
RSA_4096	SHA384WITHECDSA
EC_prime256v1	SHA512WITHECDSA
EC_secp384r1	SHA256WITHRSA
	SHA384WITHRSA
	SHA512WITHRSA

API Service Driven for Automation



Android



iOS



Java



JavaScript



.NET



Python (boto)



Ruby



Xamarin



Node.js



PHP



ACM Private CA API

CreateCertificateAuthority

IssueCertificate

GetCertificate

RevokeCertificate

UpdateCertificateAuthority

DeleteCertificateAuthority

ListCertificateAuthorities

DescribeCertificateAuthority

GetCertificateAuthorityCsr

CreateCertificateAuthorityAuditReport

DescribeCertificateAuthorityAuditReport

ImportCertificateAuthorityCertificate

GetCertificateAuthorityCertificate

TagCertificateAuthority

UntagCertificateAuthority

ListTags



Pricing

CA Operation

- \$400 per month, per CA
- Monthly fee for the operation of each ACM Private CA until you delete it

Certificates issued

- Public and private certificates for use with ACM-integrated services are free
- You pay for certificates for which you have access to the private key

Certificates issued (per month, per region)	Price per certificate
0–1,000	\$0.75
1,000–10,000	\$0.35
10,000+	\$0.001

- **Free trial** – First 30 days of CA operation for the first CA are free for new accounts. You pay for certificates issued during the trial.

AWS Regions

- Northern Virginia
- Ohio
- Oregon
- Montreal
- Ireland
- Frankfurt
- London (coming soon)
- Tokyo
- Sydney
- Singapore

Key Takeaways

- ✓ ACM Private CA is a fully managed private CA without the complexity and high overhead of managing one.
- ✓ ACM can now manage the lifecycle of public and private certificates.
- ✓ ACM Private CA provides agility and customization.
- ✓ ACM Private CA integrates with other key AWS services such as AWS IAM, AWS CloudTrail and Tagging, providing more functionality and value.

Resources

Detail page

<https://aws.amazon.com/certificate-manager/private-certificate-authority/>

FAQs

<https://aws.amazon.com/certificate-manager/faqs/>

User Guide

<https://docs.aws.amazon.com/acm-pca/latest/userguide/PcaWelcome.html>

Questions and Answers

Thank You!