



AWS Certified Solutions Architect Associate

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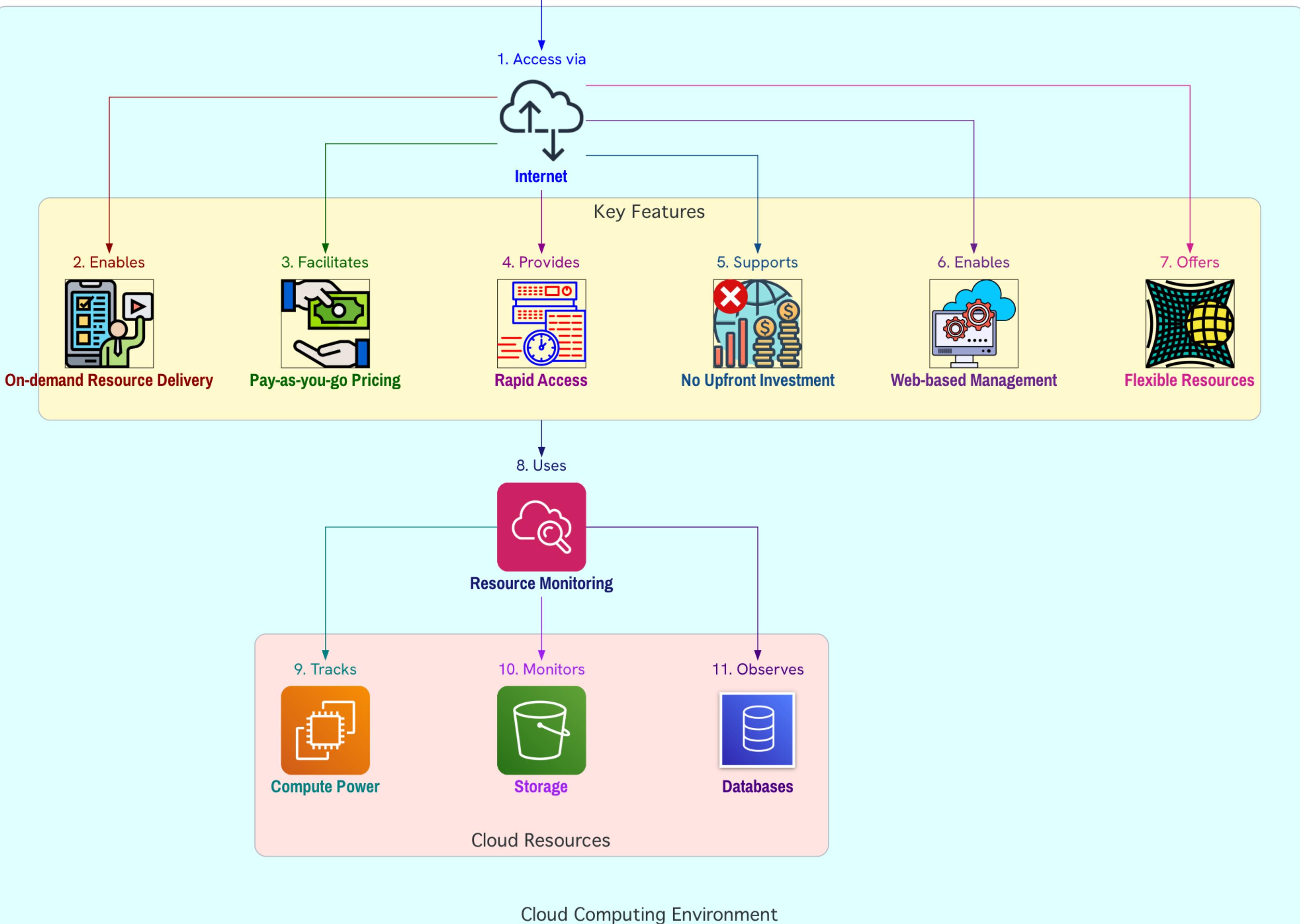
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What is Cloud Computing?



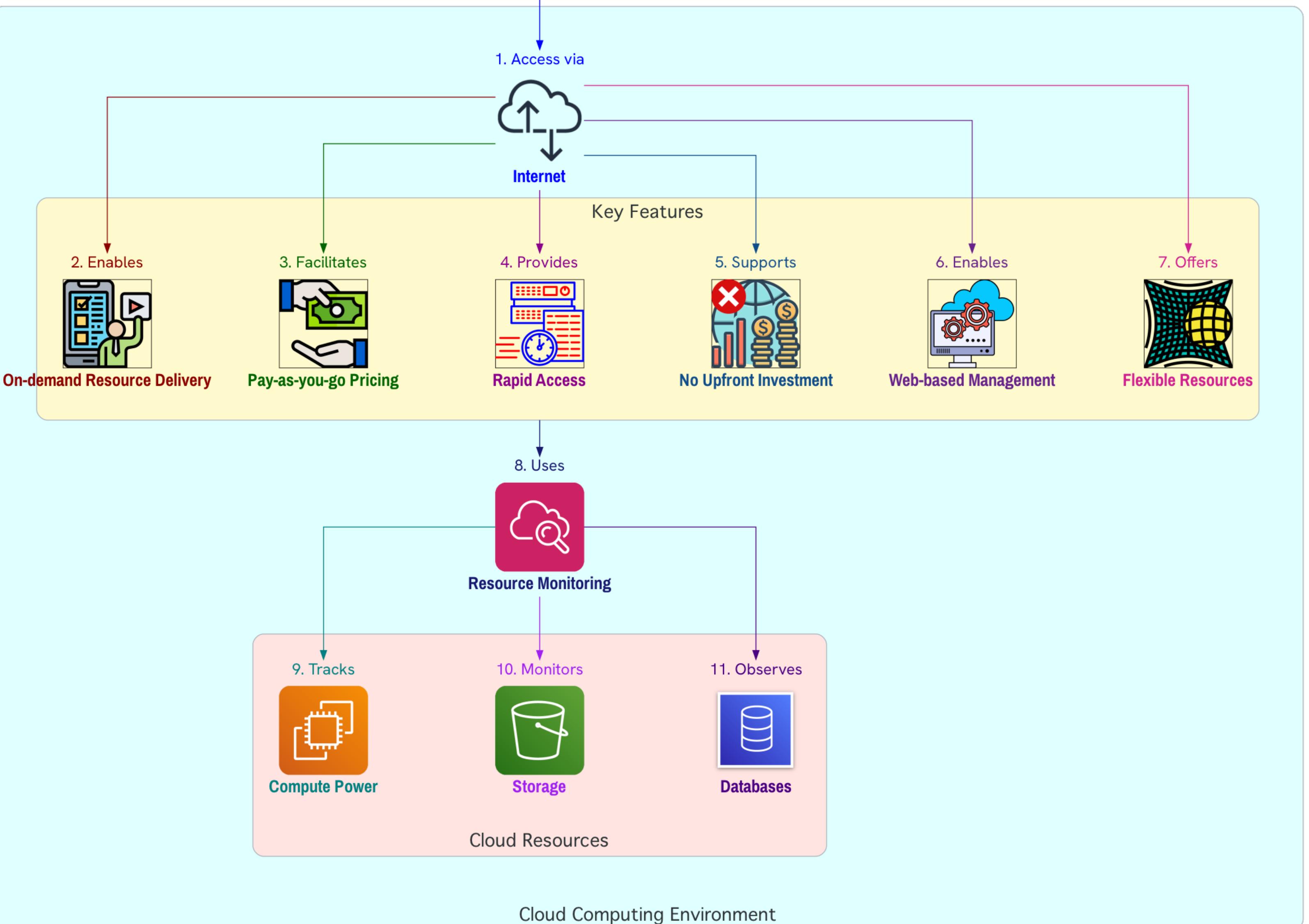
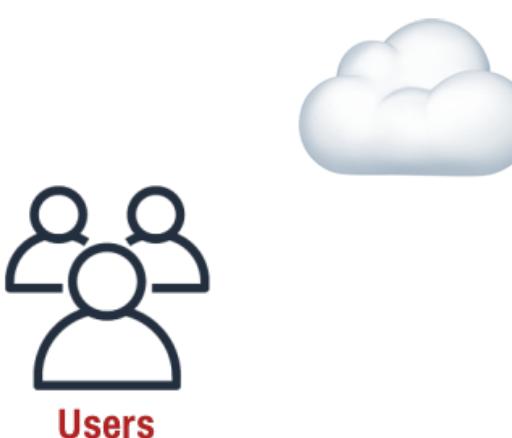
1. On-demand IT resources delivery
Compute power
Storage
Other IT resources
2. Pay-as-you-go pricing model

2. Pay-as-you-go pricing model
Pay for consumed resources only
Avoid unused capacity costs
Prevent overprovisioning

3. Rapid access to flexible resources
Quick provisioning
Customizable resource types and sizes
Adaptable to changing business needs

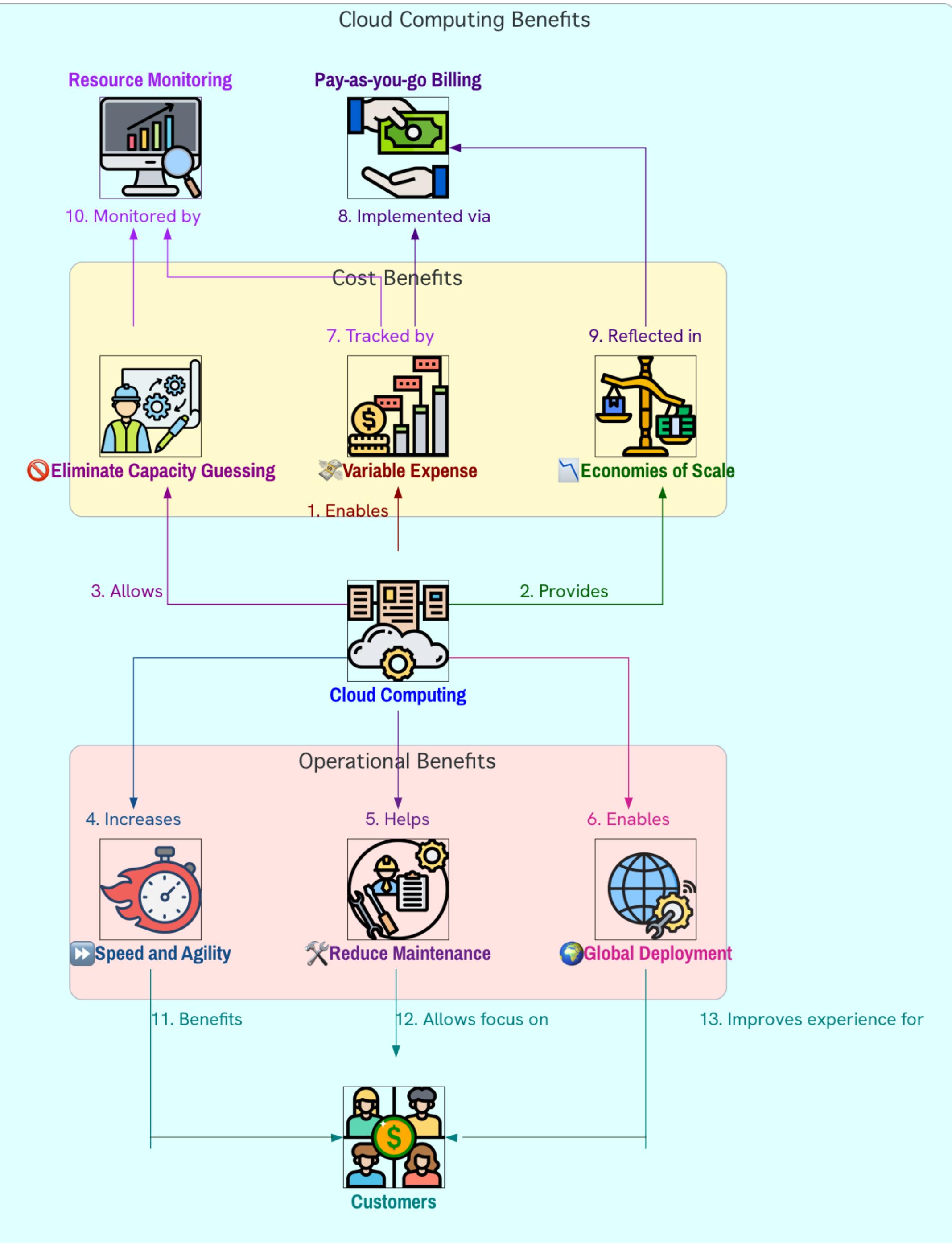
4. Eliminates upfront hardware investment
No large initial investments
Removes hardware management burden
Focus on innovation and development

What is Cloud Computing?



- | | |
|--|--|
| 5. Access to servers, storage, and databases | 6. Web-based provisioning and management |
| Servers | Easy resource provisioning |
| Storage solutions | Management through web application |
| Databases | Scalability options |
| Internet-accessible | Cloud service platforms (e.g., AWS) |

Benefits of Cloud Computing



1. 💵 Switch from fixed to variable expense

Pay only for used resources

Expenses tied to consumption

No large upfront investments

2. 📈 Leverage economies of scale

Benefit from aggregated usage

Lower costs

Pay-as-you-go pricing

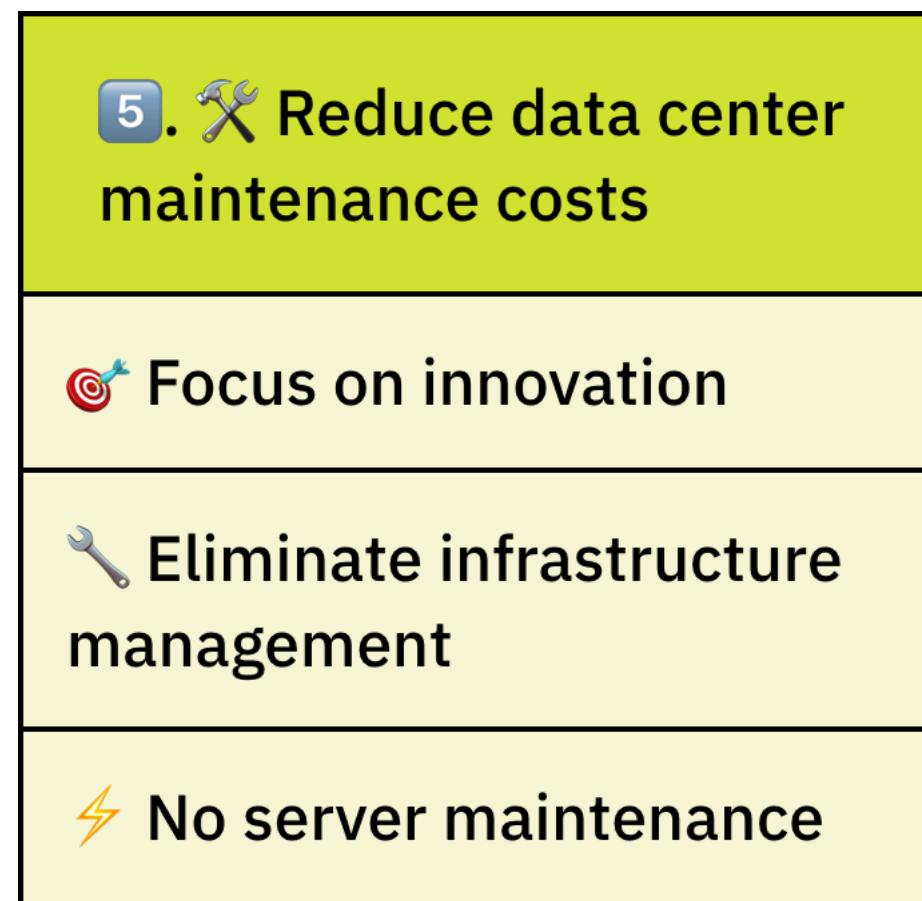
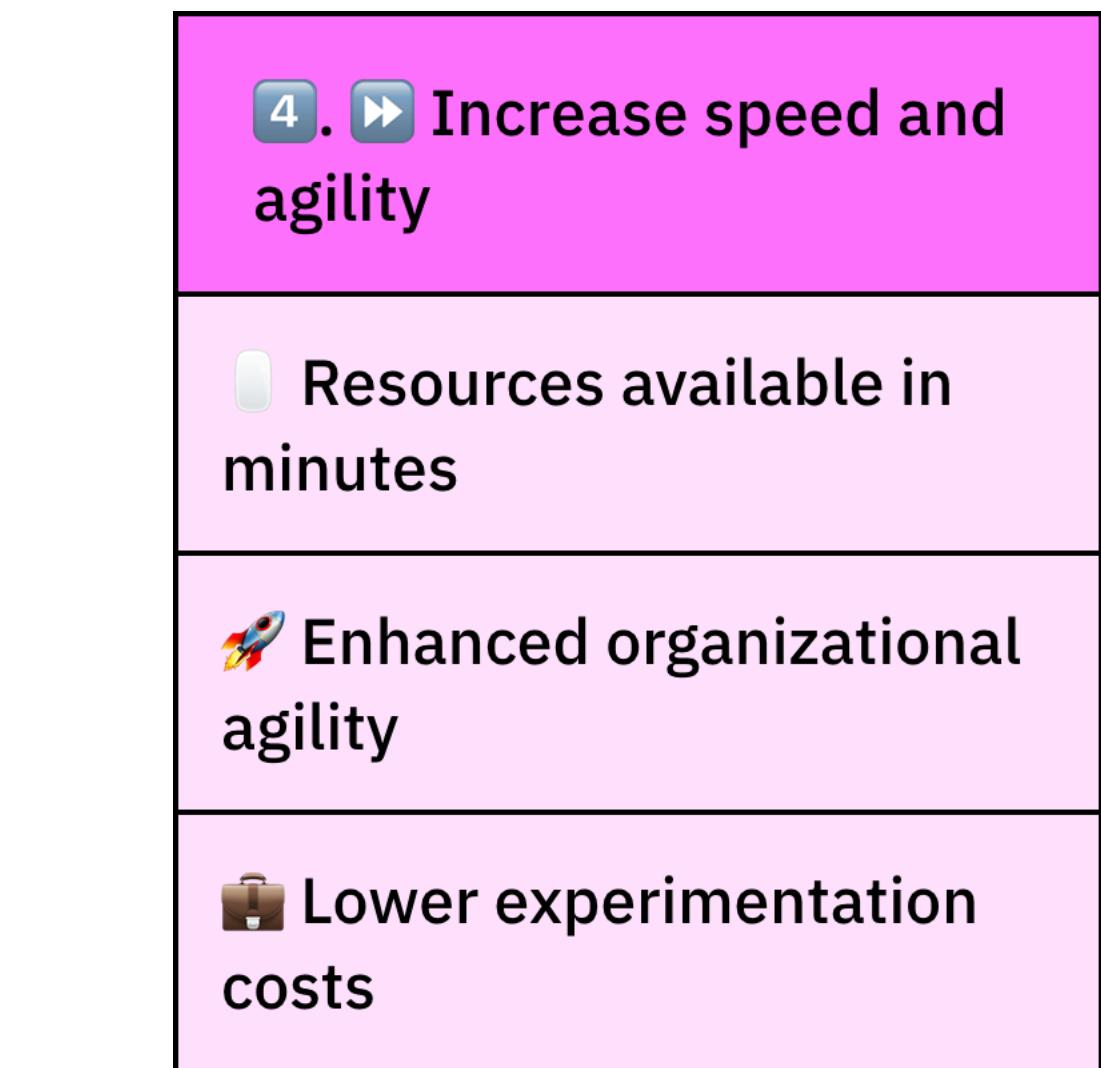
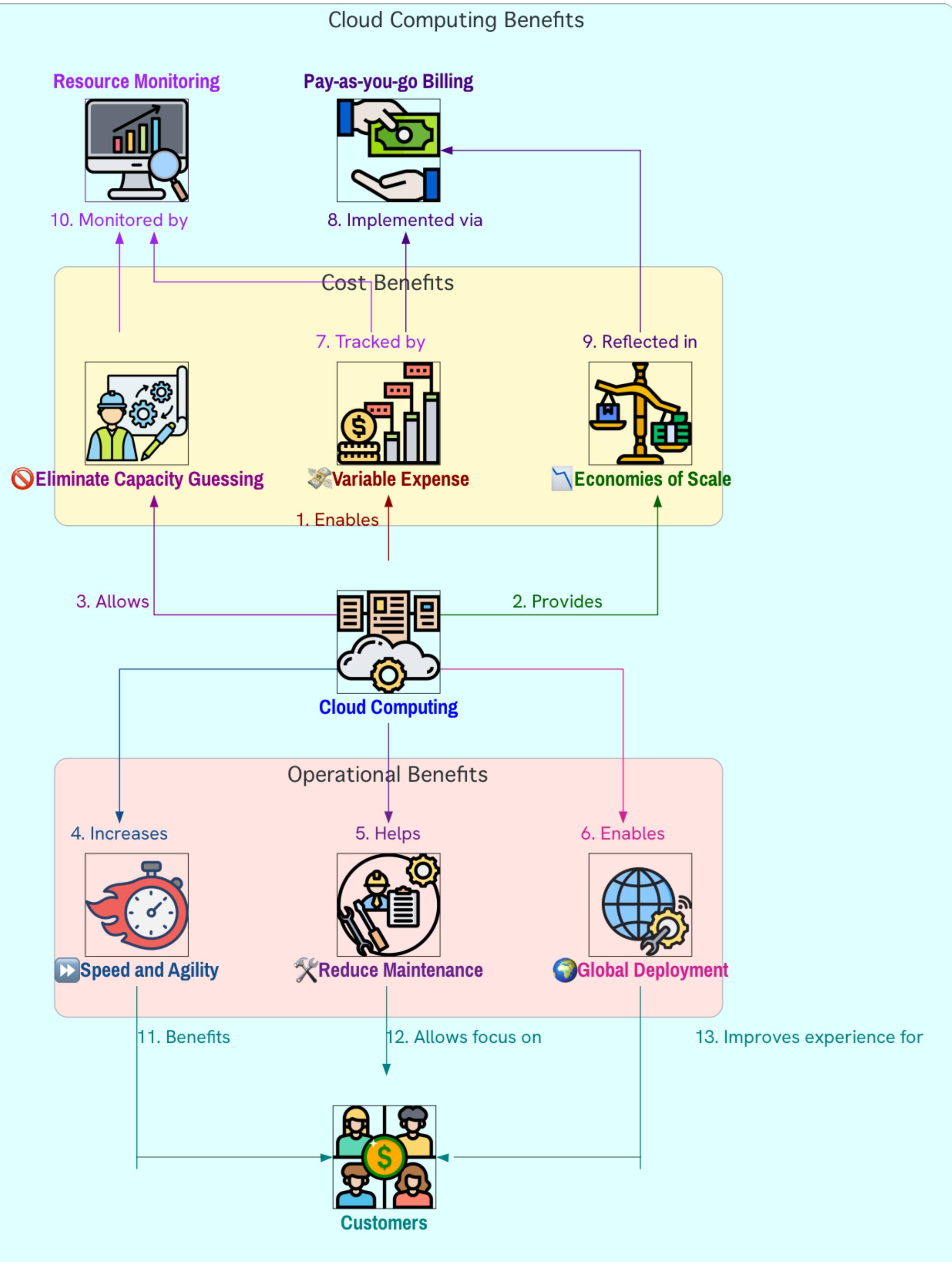
3. ❌ Eliminate capacity guessing

Scale resources as needed

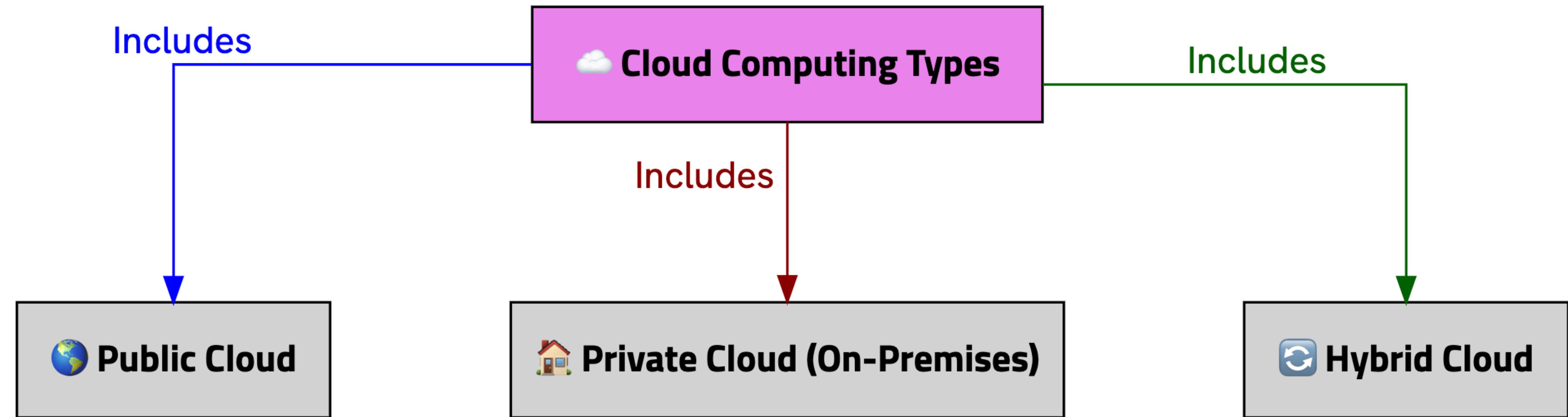
Minimal notice required

Avoid unused resource costs

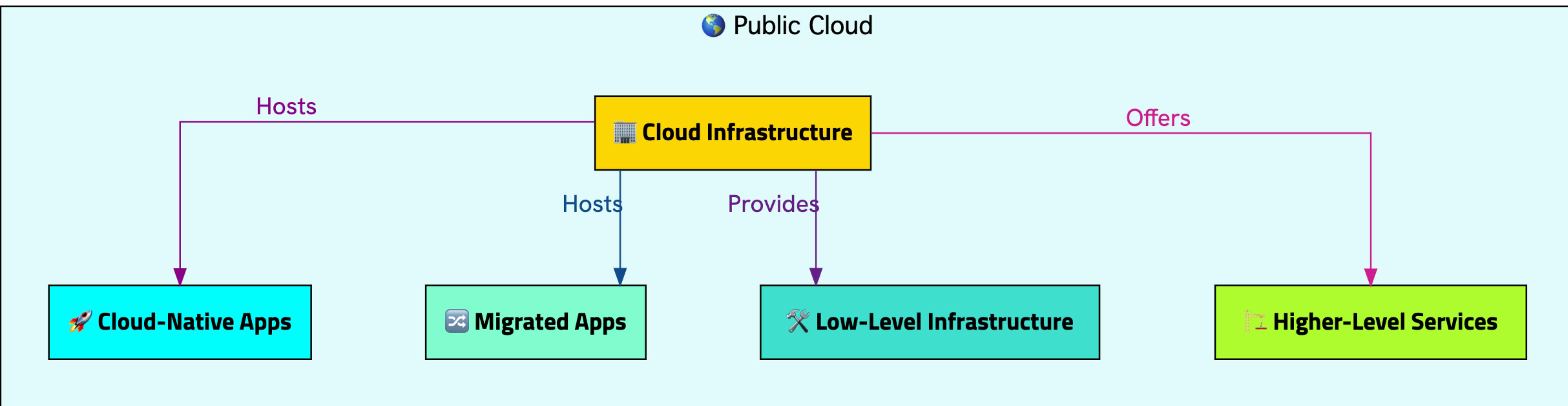
Benefits of Cloud Computing



Types of Cloud Computing



Types of Cloud Computing - Public Cloud



1. Public Cloud	
Fully deployed in cloud	
Built or migrated apps	Low-level infrastructure
	Higher-level services
Abstraction from core management	

Types of Cloud Computing - Private Cloud



Private Cloud (On-Premises)



On-Premises Infrastructure

Uses



Virtualization

Employs



Resource Management Tools

2.

Private Cloud (On-Premises)



Virtualization



On-premises deployment



Resource management tools



Dedicated resources



Increased resource utilization



Application management



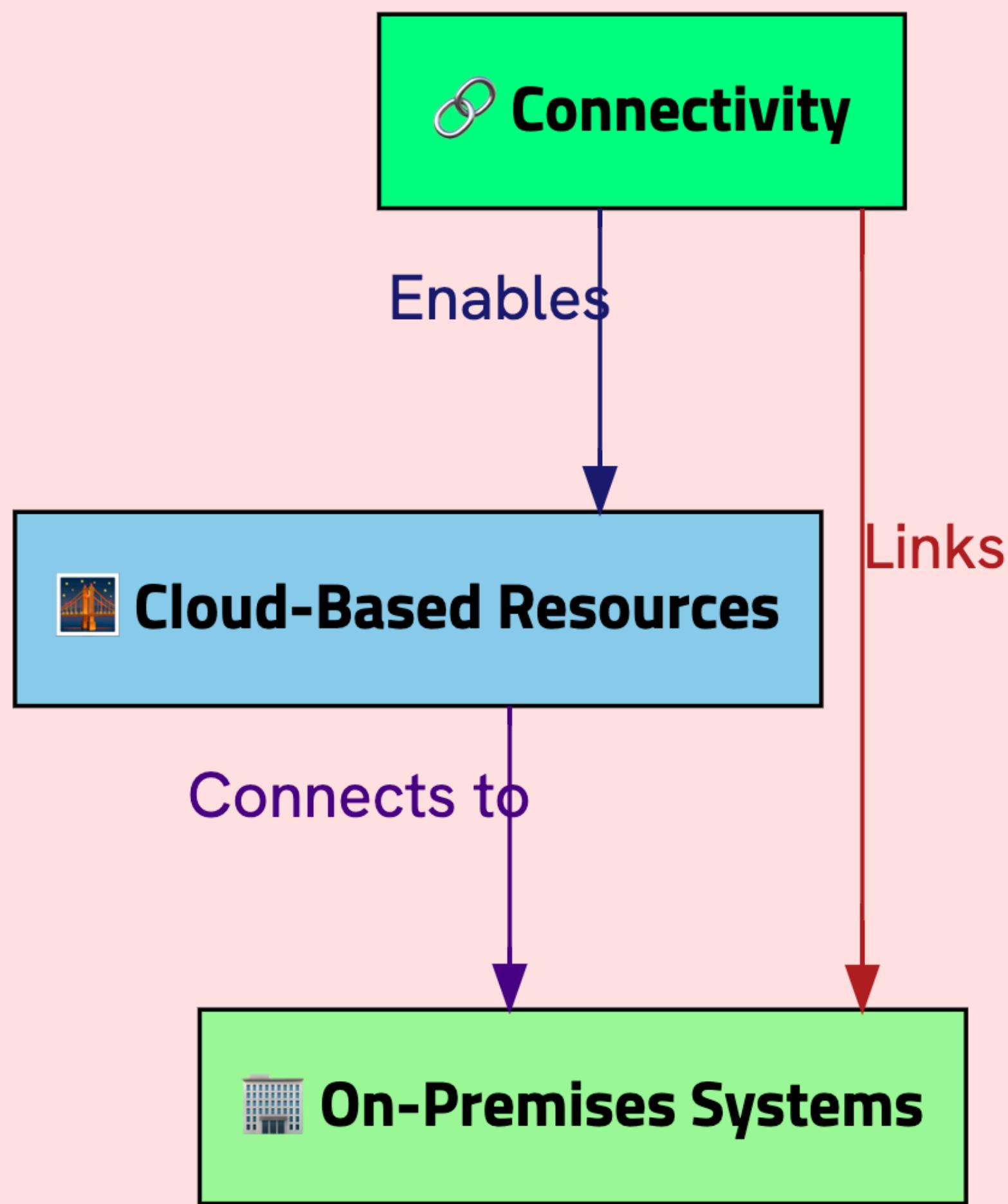
Resembles legacy IT infrastructure



Virtualization technologies

Types of Cloud Computing - Hybrid Cloud

Hybrid Cloud



3. Hybrid

🔗 Connects cloud and on-premises

🚀 Extends infrastructure to cloud

🔌 Links cloud to internal systems

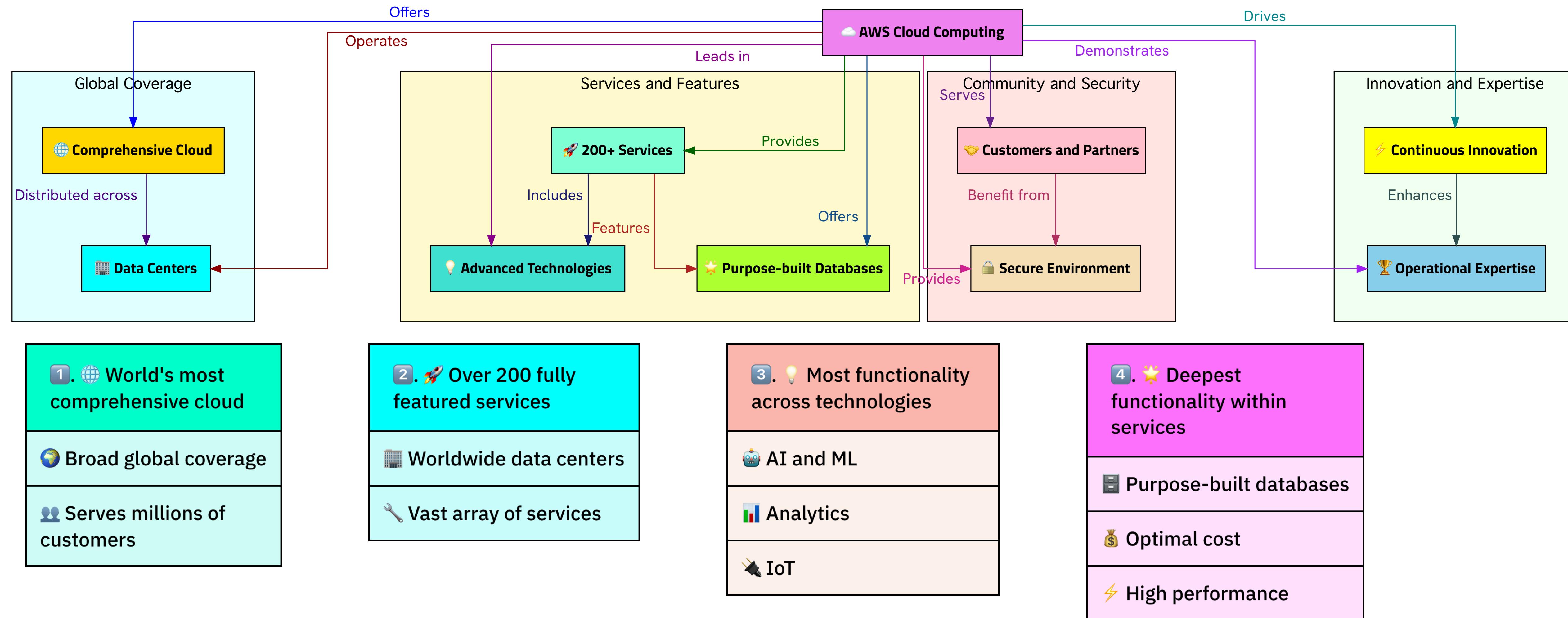
↗️ Expanding infrastructure

🏢 Common for organizations

🔒 Maintaining on-premises connection

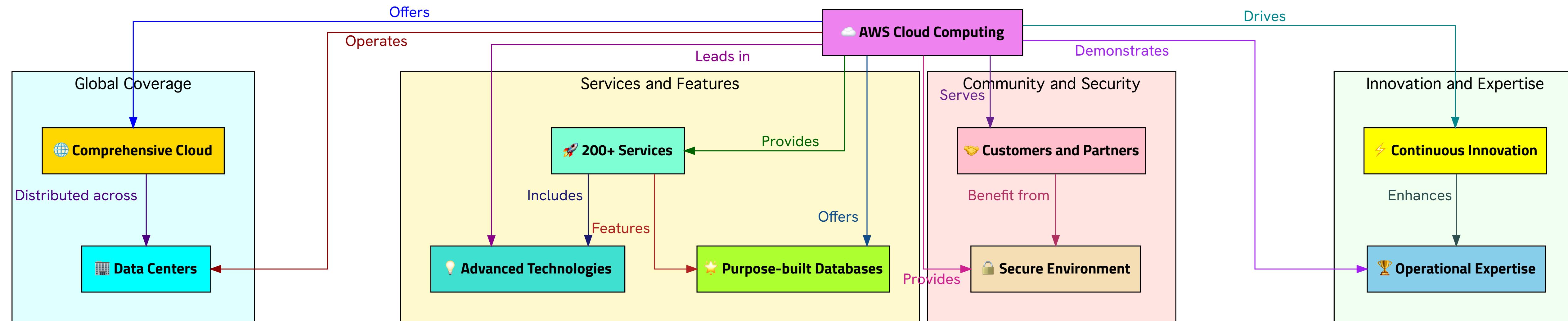


Cloud Computing with AWS





Cloud Computing with AWS

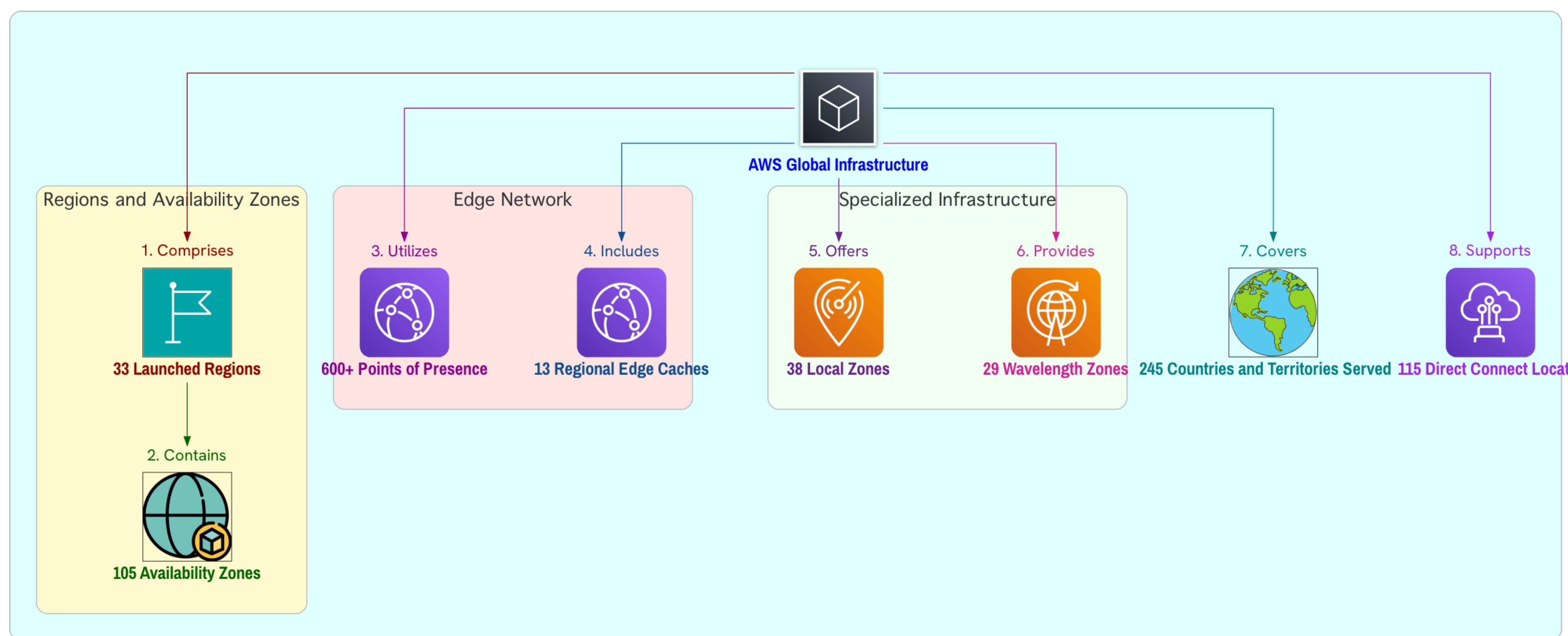


5. 🤝 Largest community of customers and partners
Millions of active customers
Tens of thousands of partners
Across all industries

6. 🔒 Most secure cloud computing environment
Highest security standards
Comprehensive security tools
Security certifications

7. ⚡ Fastest pace of innovation
NEW Continuous introduction of new technologies
AWS Lambda for serverless computing
Amazon SageMaker for machine learning

8. 🏆 Most proven operational expertise
17+ years of experience
Mature and reliable services
Secure cloud services
Broad customer spectrum



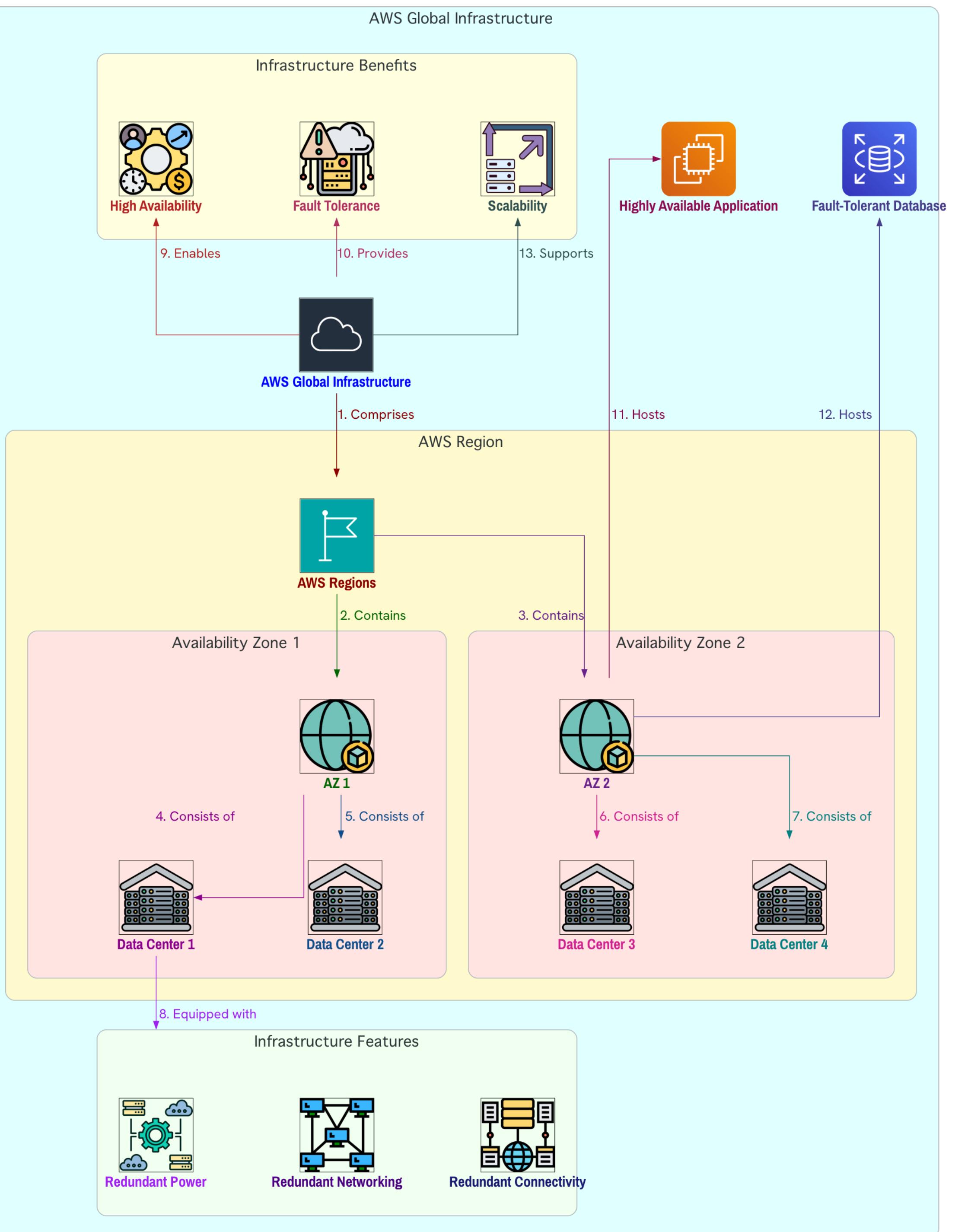
1. Launched Regions
33 Regions
Multiple Availability Zones per region
2. Availability Zones
105 AZs

3. Points of Presence and Edge Caches
600+ Points of Presence
13 Regional Edge Caches

4. Specialized Zones	
Local Zones	38 Local Zones
Wavelength Zones	29 Wavelength Zones Ultralow latency applications

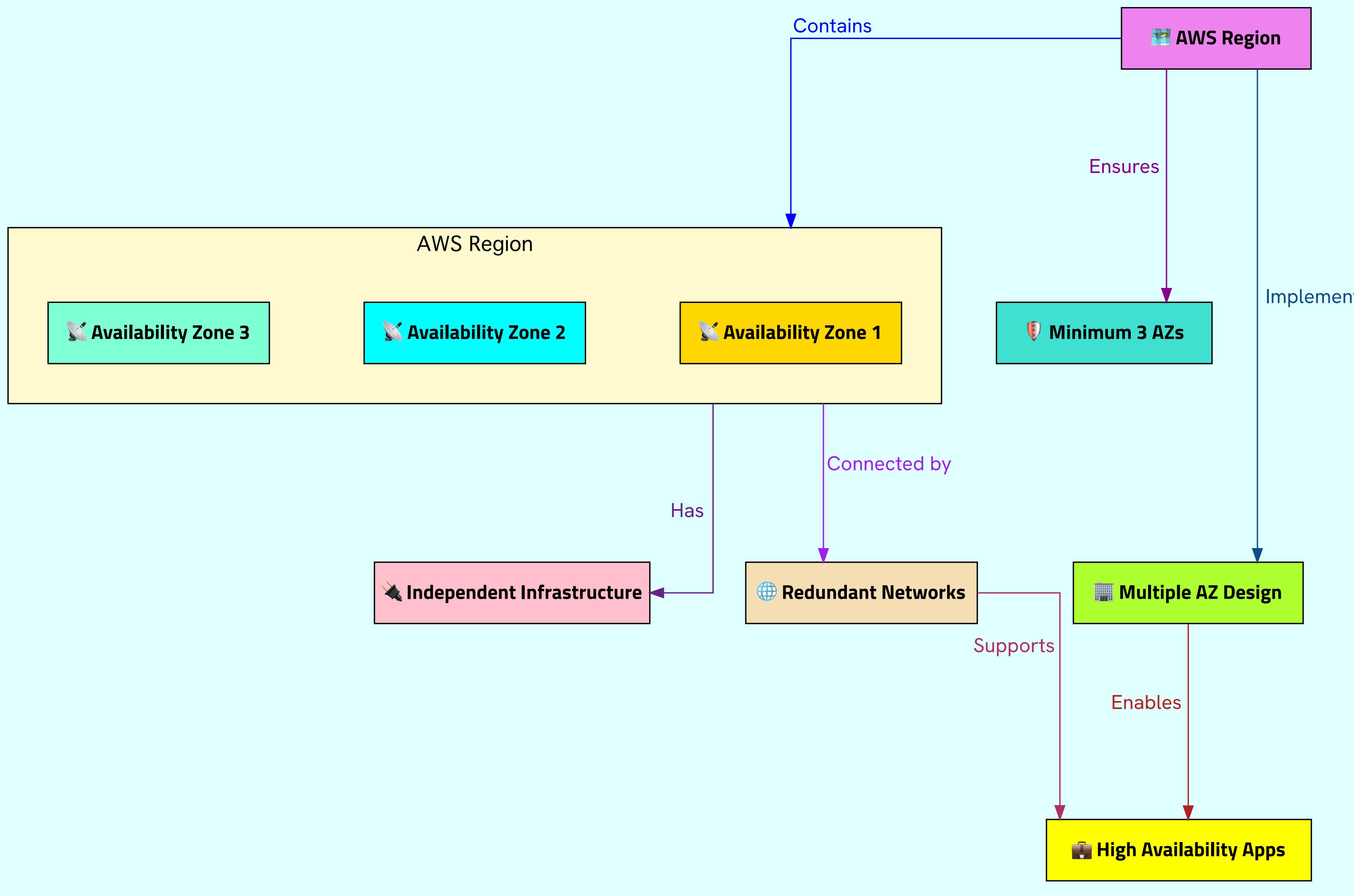
5. Global Coverage
245 Countries and Territories
6. Direct Connect Locations
115 Locations

Global Infrastructure of AWS Cloud



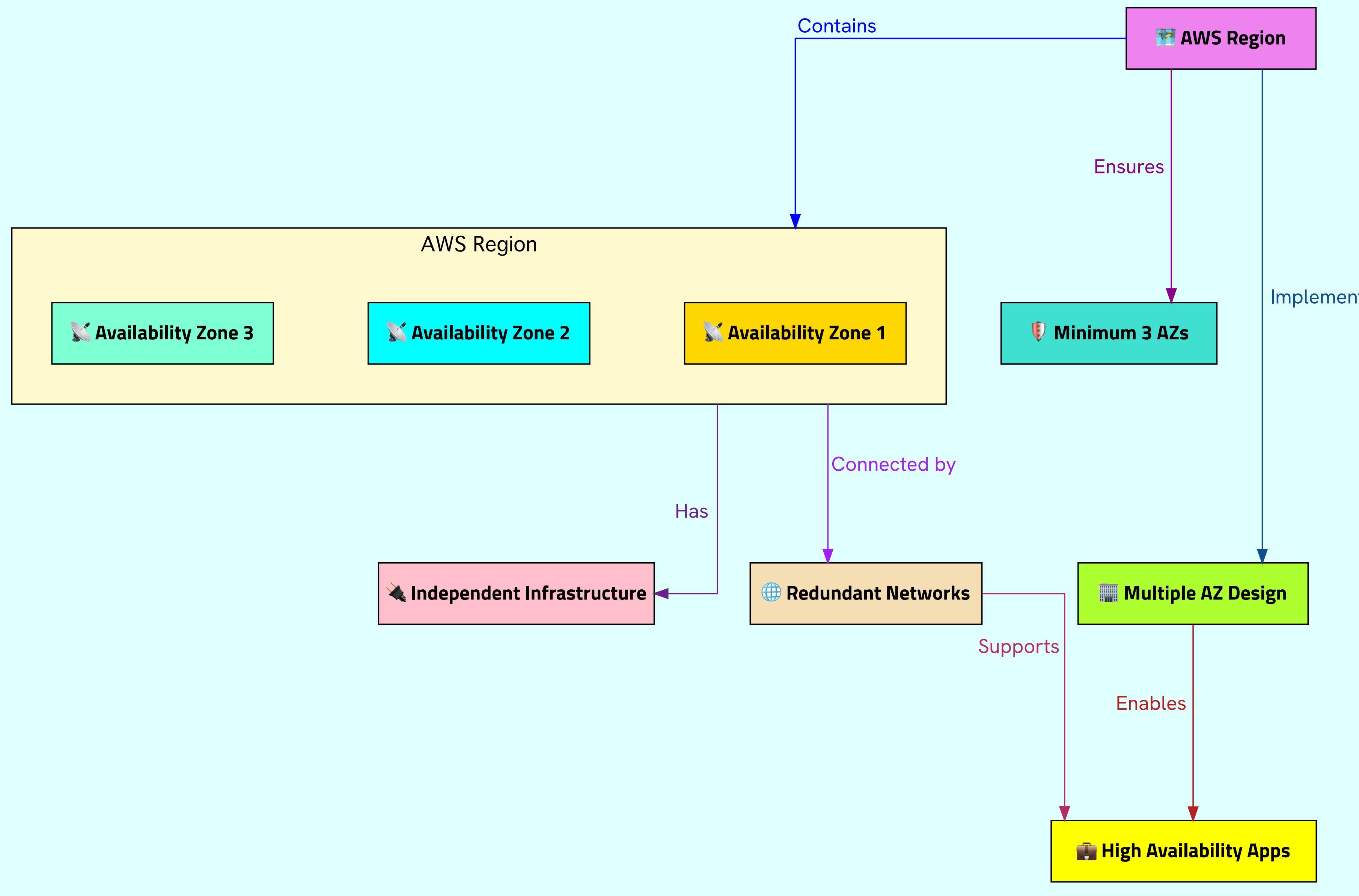
1. 🌎 AWS Regions and Availability Zones	3. 💿 Redundant infrastructure
Specific physical locations worldwide	Redundant power supplies
Regions house multiple Availability Zones	Redundant networking
	Redundant connectivity
	Ensures uninterrupted service
	Enhances reliability
2. 🏢 Multiple discrete data centers	4. 🛡️ Advanced architecture benefits
Isolated and secure environments	Surpasses single data center capabilities
One or more data centers per Availability Zone	Resilient application deployment
	Scalable database deployment

AWS Regions and Availability Zones



- 1.  Concept of AWS Region**
 - Physical locations worldwide
 - Clustered data centers
- 2.  Availability Zones (AZs)**
 - Logical data centers
 - Groups within each Region
- 3.  Minimum of three AZs per Region**
 - Geographic area
 - Isolated and physically separate

AWS Regions and Availability Zones



4.  **Multiple AZ design advantages**

 **Compared to single data center regions**

 **Reliability benefits**

 **Fault tolerance improvements**

5.  **Independent infrastructure**

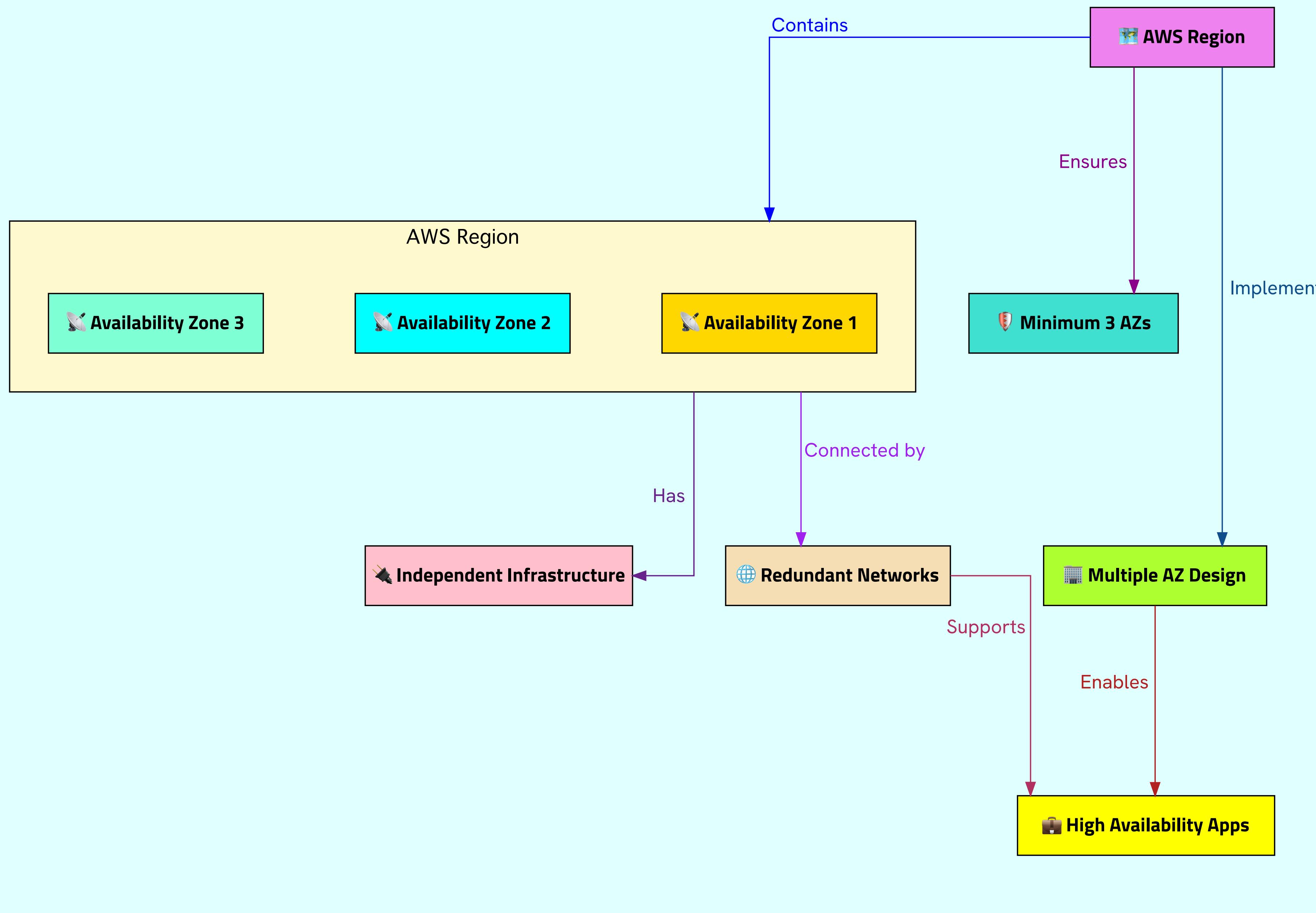
 **Power**

 **Cooling**

 **Physical security**

 **Uninterrupted service**

AWS Regions and Availability Zones



6. Redundant, ultra-low-latency networks

 Interconnected AZs

 High-speed networking

 Ultra-low latency communication

7. High availability application design

 Run across multiple AZs

 Greater fault-tolerance

 High availability



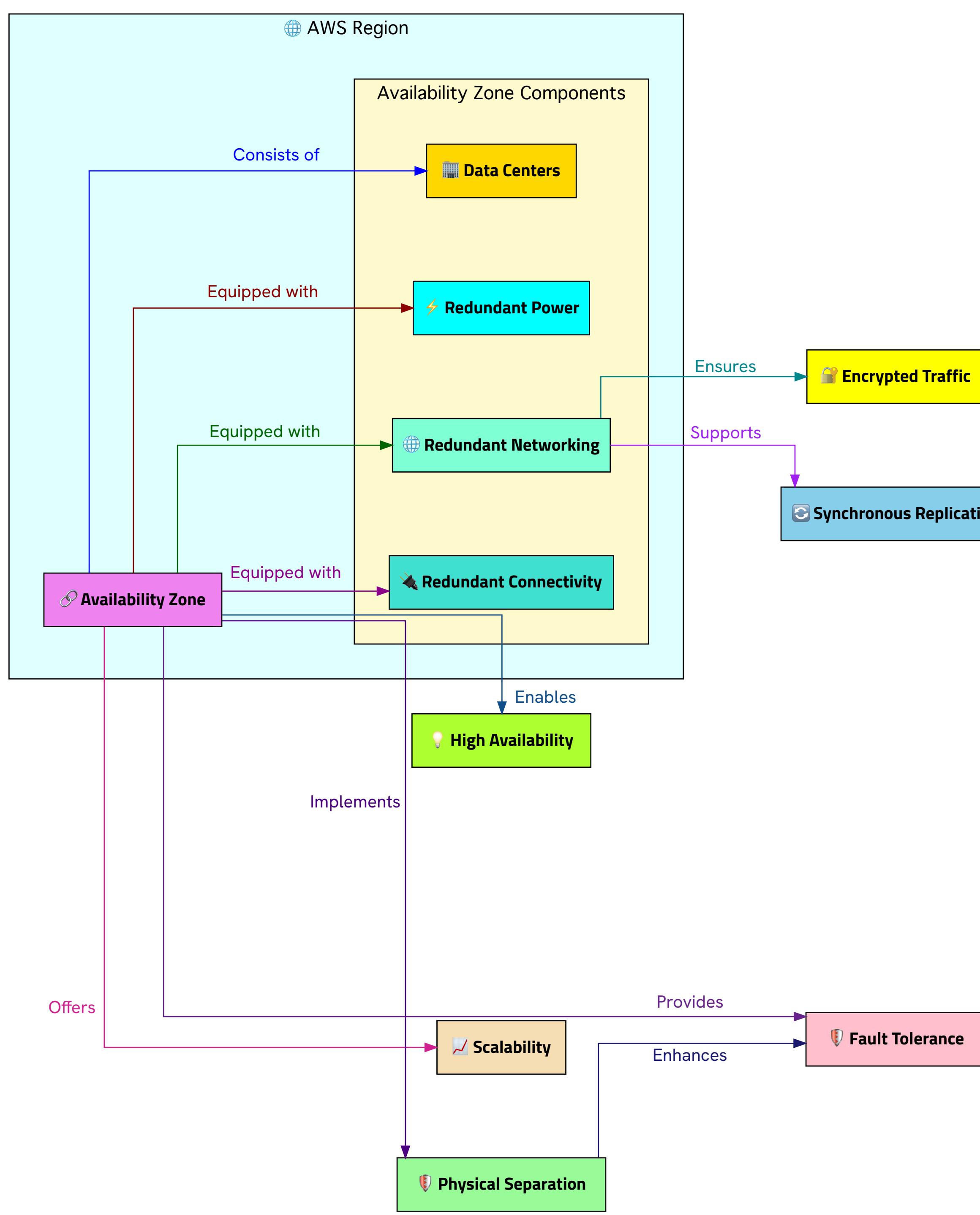
[North America](#) [South America](#) [Europe](#) [Middle East](#) [Africa](#) [Asia Pacific](#) [Australia and New Zealand](#)



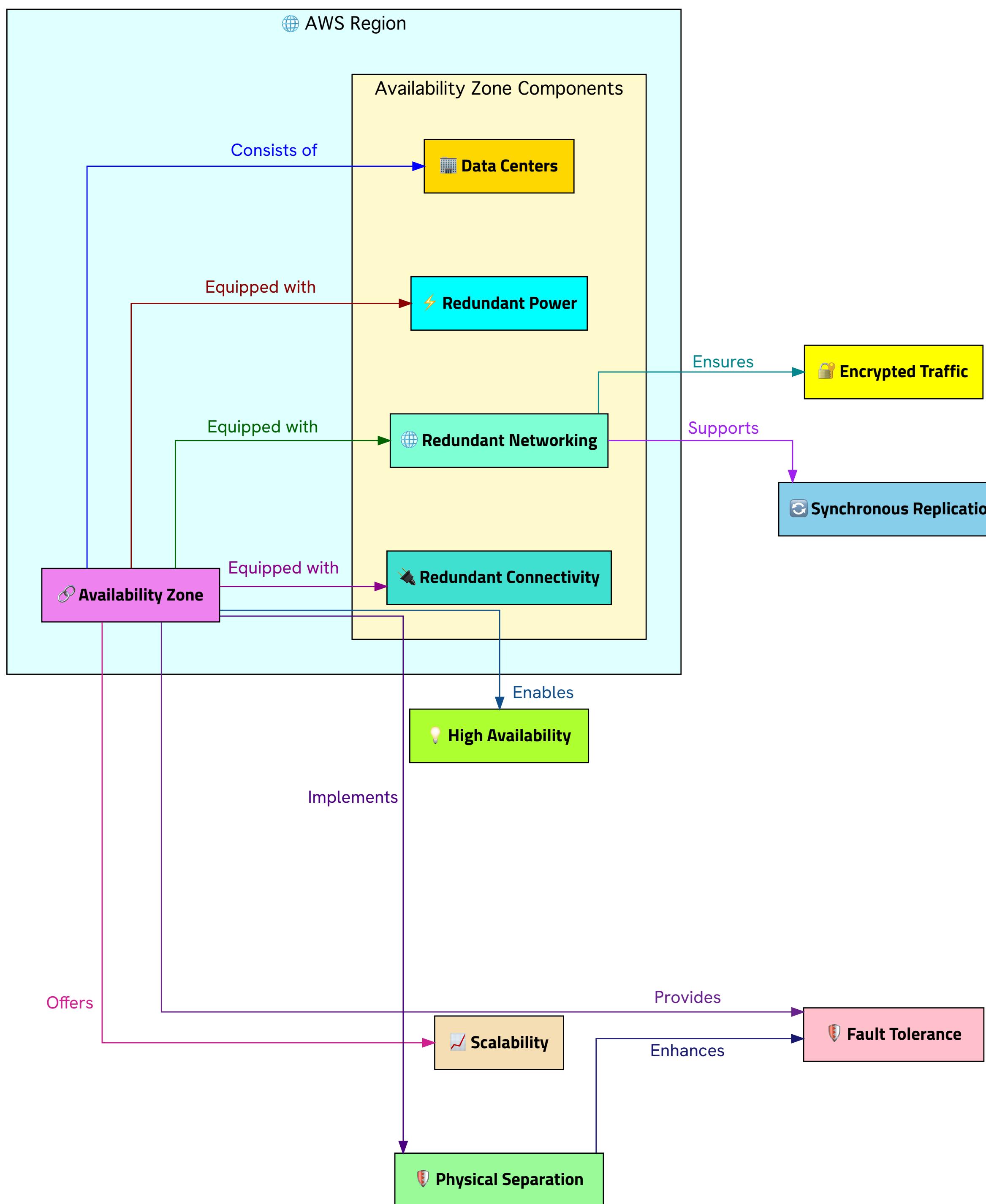
[North America](#) [South America](#) [Europe](#) [Middle East](#) [Africa](#) [Asia Pacific](#) [Australia and New Zealand](#)



Availability Zones



Availability Zones



- 4.  Encrypted traffic between AZs
 -  Secure encryption
 -  Data privacy
 -  Enhanced security
 - 5.  Synchronous replication capability
 -  Real-time data availability
 -  Disaster recovery strategies
 -  High-performance network support

North America Region

North America

US West (Oregon) Region

Availability Zones: 4

Launched 2011

Local Zones: 7

Launched 2019

Canada (Central) Region**

Availability Zones: 3

Launched 2016

Learn more at [AWS Canada](#)

US East (Northern Virginia) Region

Availability Zones: 6

Launched 2006

Local Zones: 10

Launched 2020

US West (Northern California) Region

Availability Zones: 3*

Launched 2009

US East (Ohio) Region

Availability Zones: 3

Launched 2016

Canada West (Calgary) Region

Availability Zones: 3

Launched 2023

GovCloud (US-West) Region

Availability Zones: 3

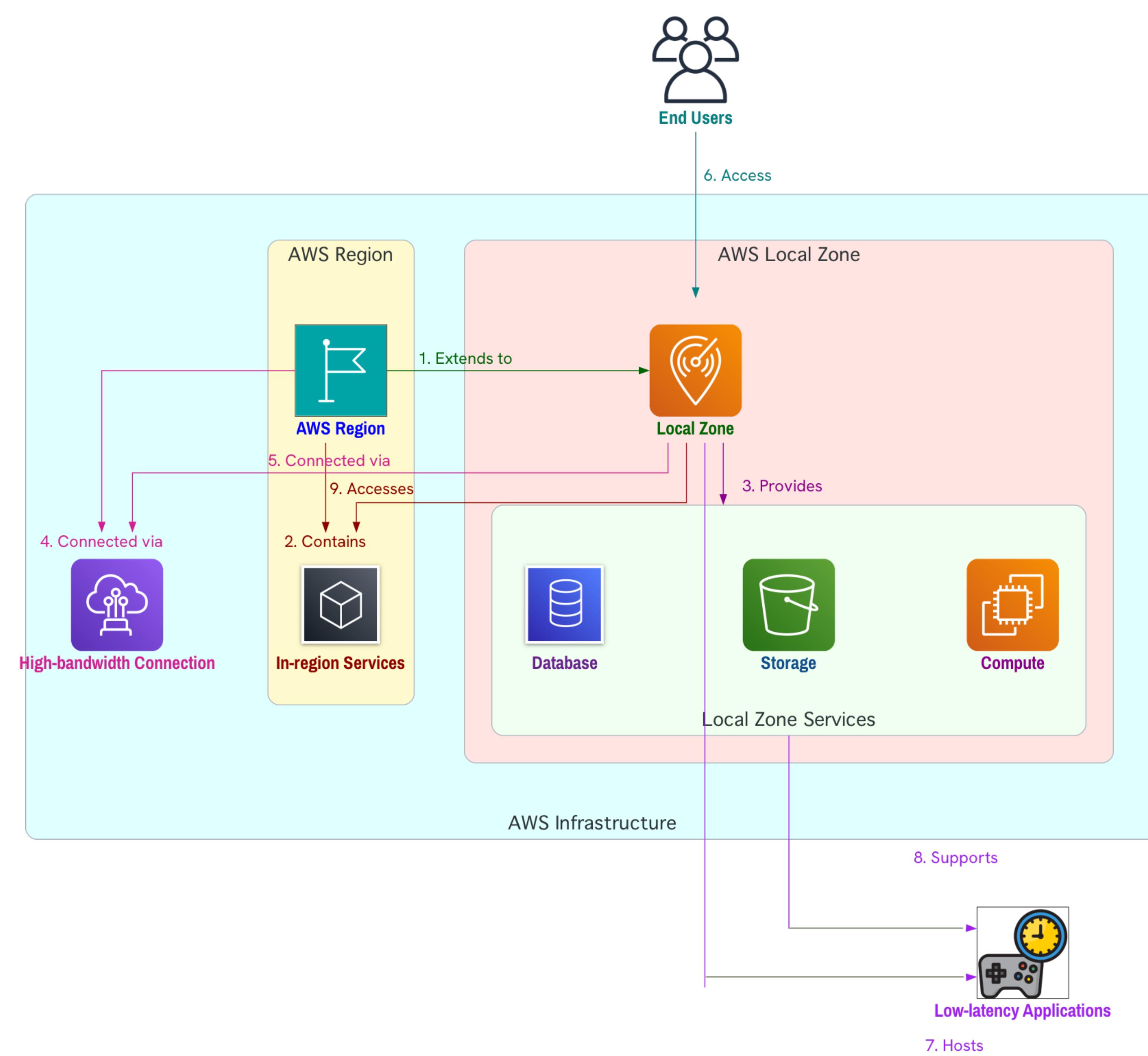
Launched 2011

GovCloud (US-East) Region

Availability Zones: 3

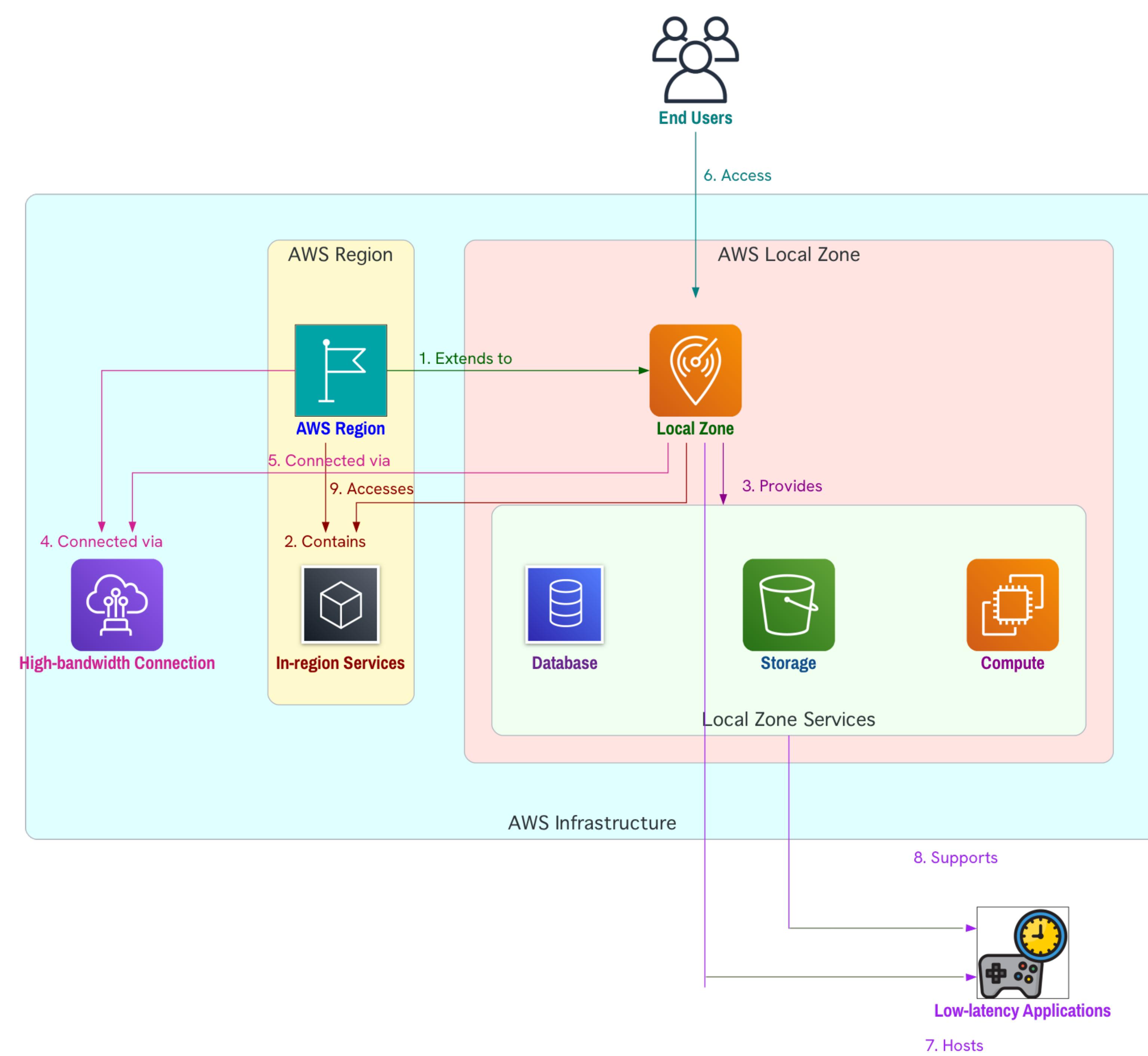
Launched 2018

AWS Local Zones



- 1. 🚀 Compute, storage, and database services closer to users
- Geographically closer to end-users
- ⌚ Minimizes latency
- Compute
- Storage
- Database
- 2. 🎮 Ideal for high-demand, low-latency applications
- ⚡ Single-digit millisecond latencies
- _MEDIA_ Media content creation
- 🎮 Real-time gaming
- 🧠 Machine learning

AWS Local Zones



3. Extension of AWS Regions

Connected to existing AWS Region

Select AWS services

Near-user latency-sensitive applications

4. High-bandwidth, secure connection to AWS Region

Robust connection

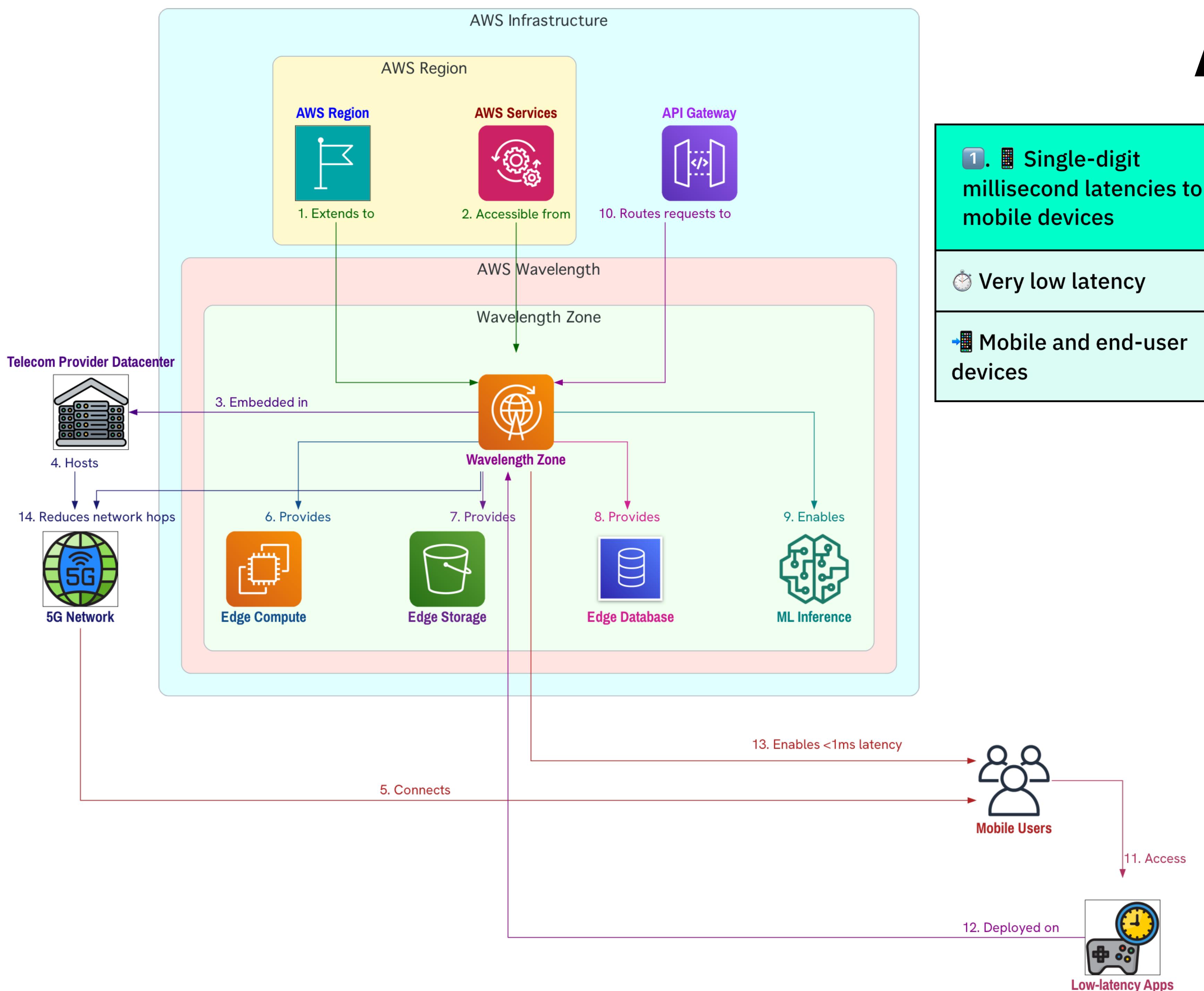
Local workloads to broader AWS Region

Easy access to in-region services

Familiar APIs

Familiar toolsets

AWS Wavelength



1. Single-digit millisecond latencies to mobile devices

Very low latency

Mobile and end-user devices

2. Deploy applications to Wavelength Zones

Developers deploy applications

Close to users

Telecom providers' data centers

Edge of 5G networks

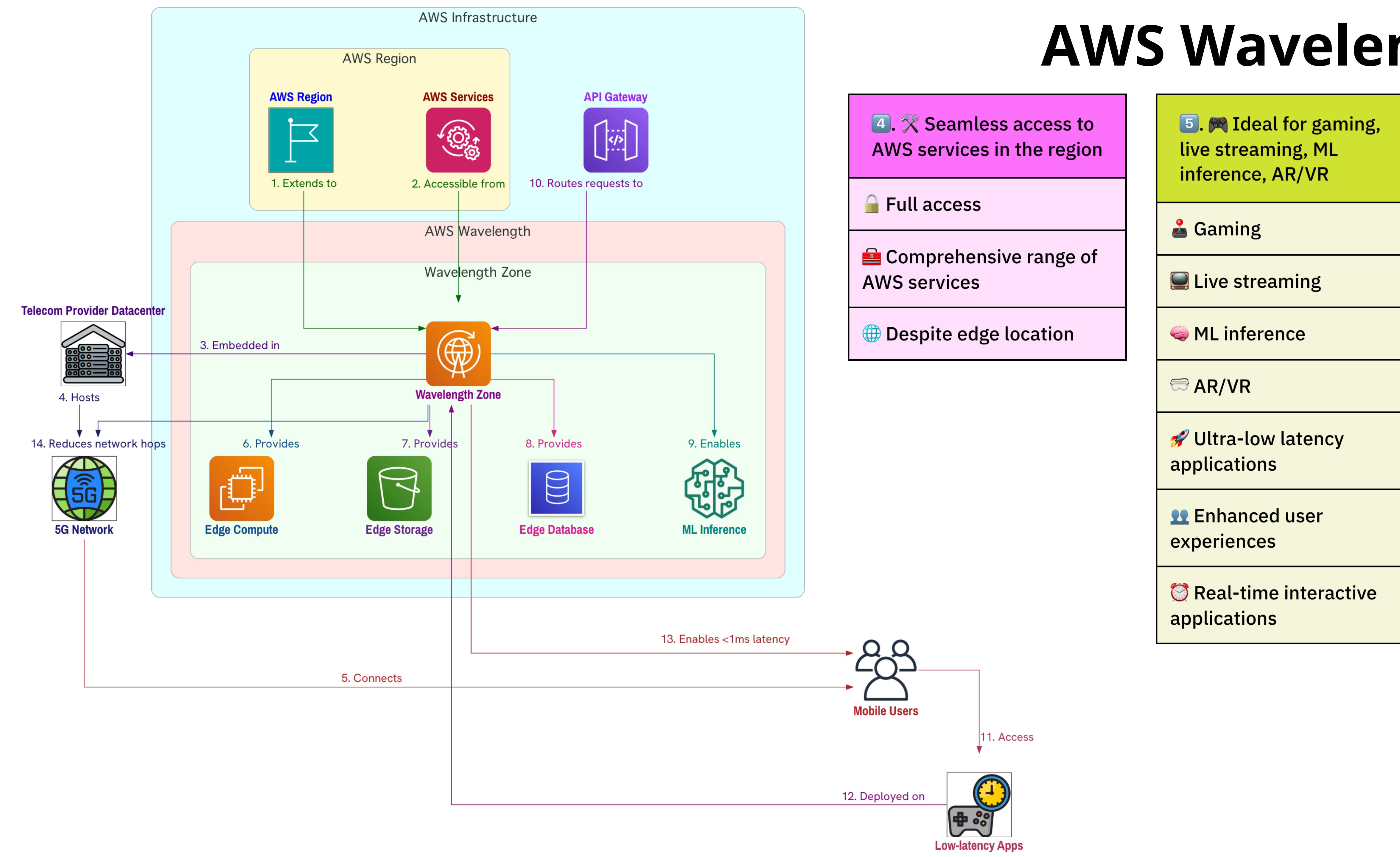
3. Embedded in telecommunications datacenters at 5G edge

Specifically designed

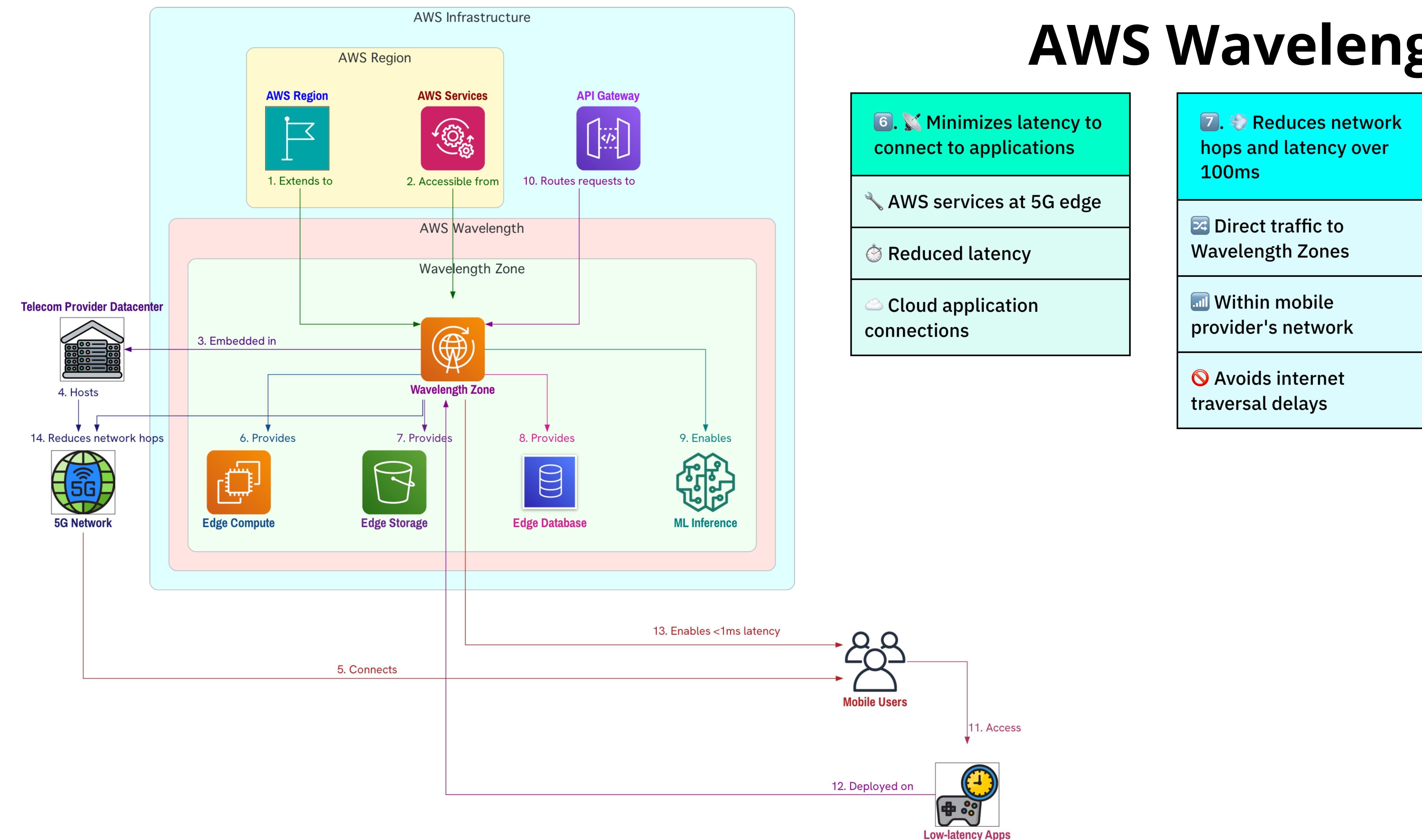
Leverage high speed

Low latency of 5G

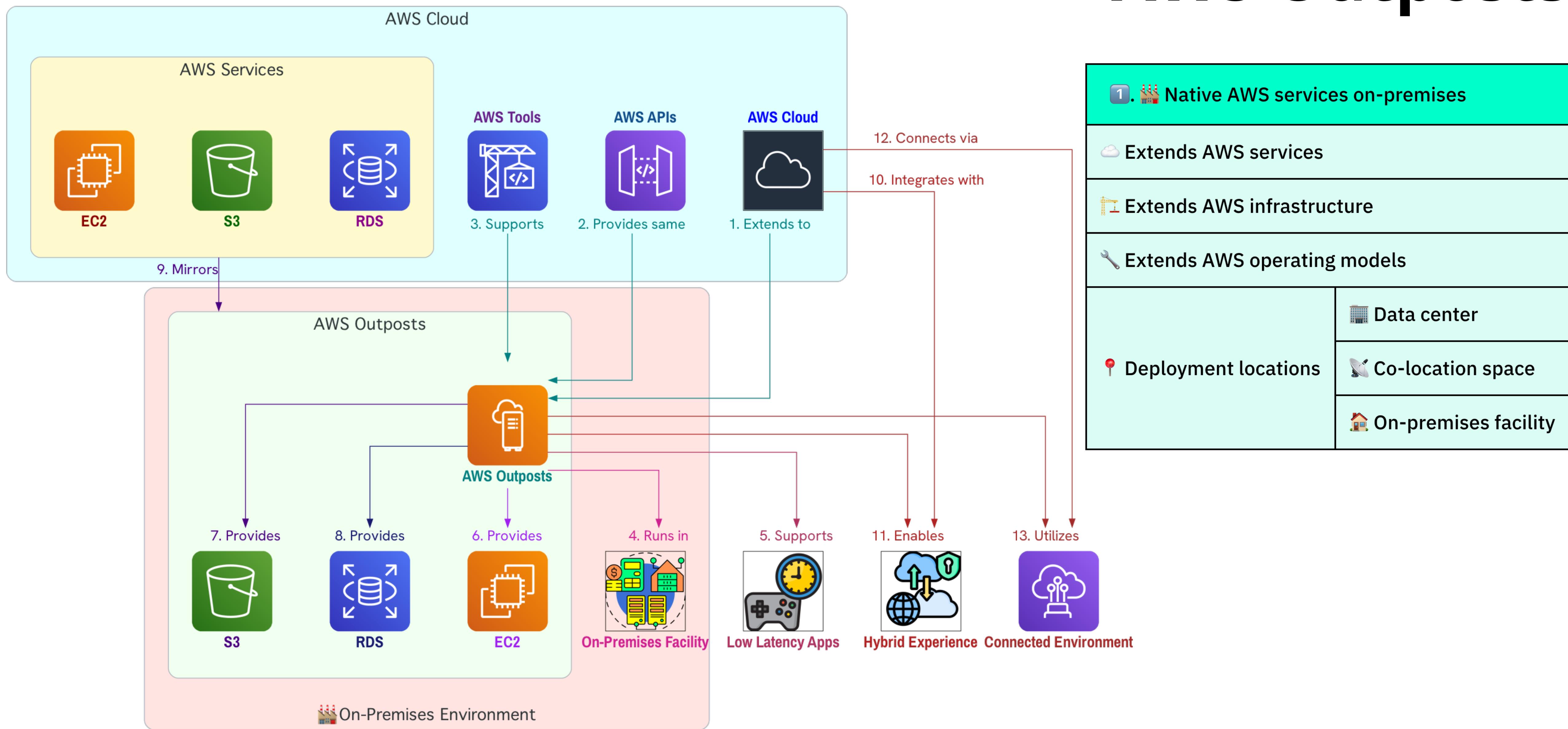
AWS Wavelength



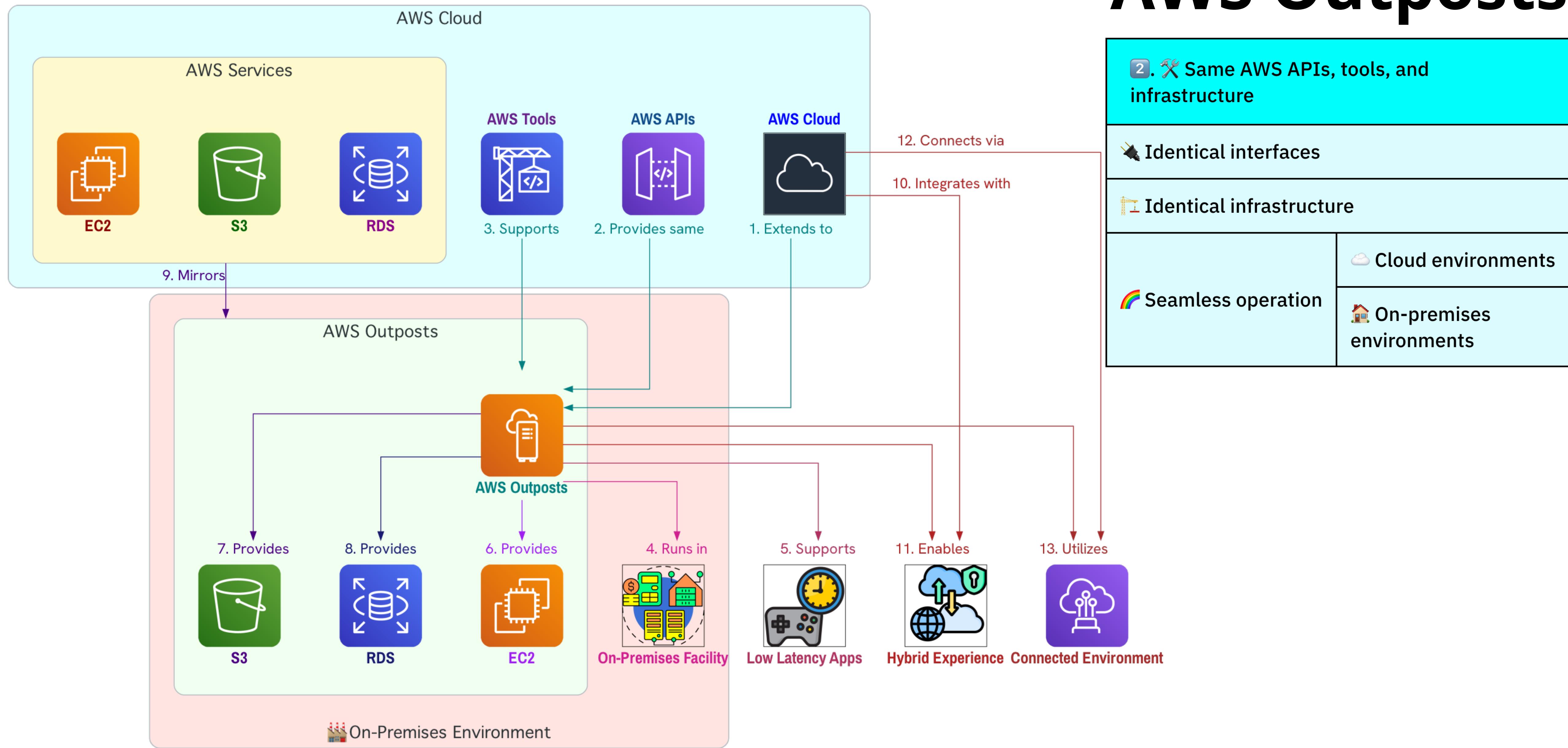
AWS Wavelength



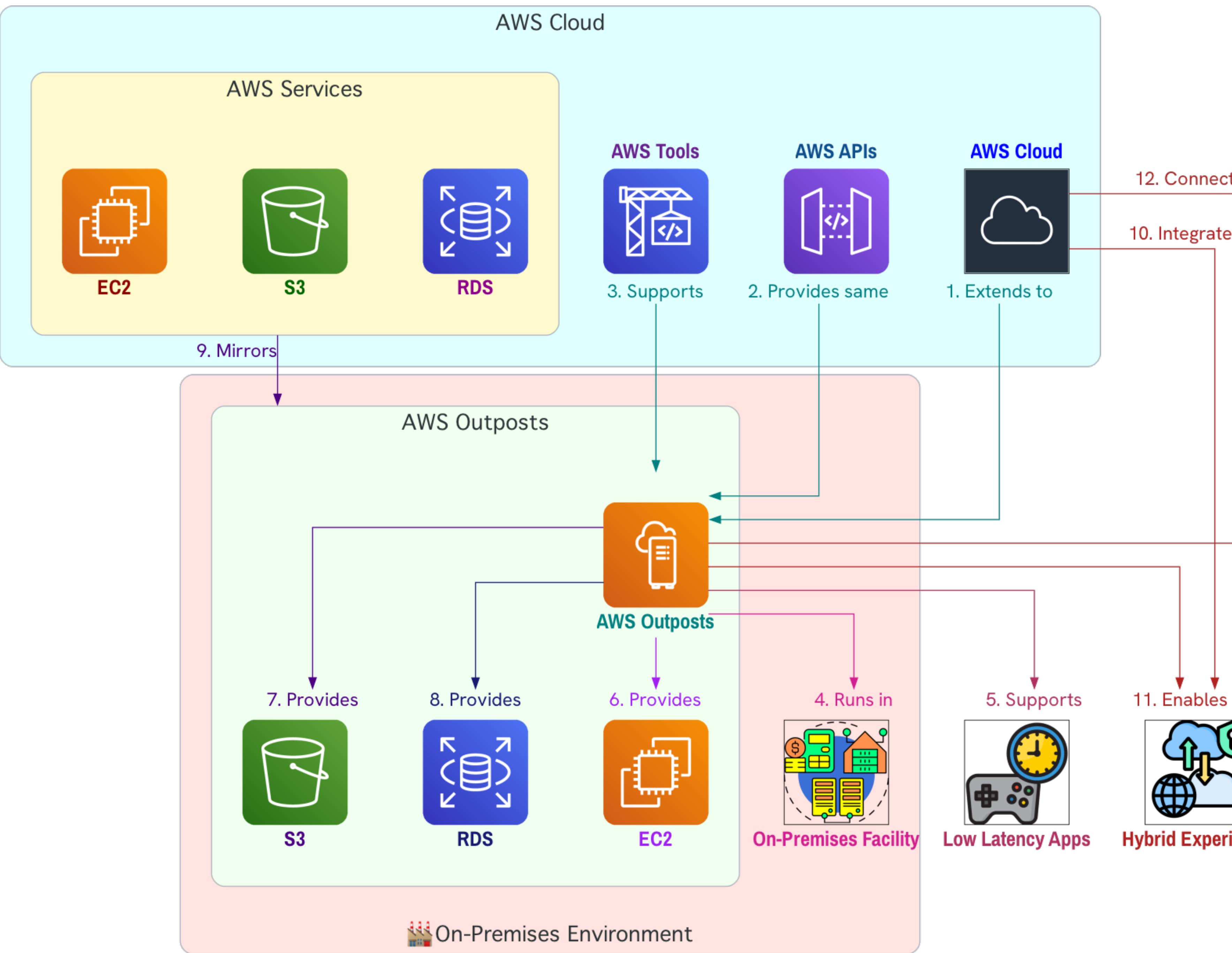
AWS Outposts



AWS Outposts

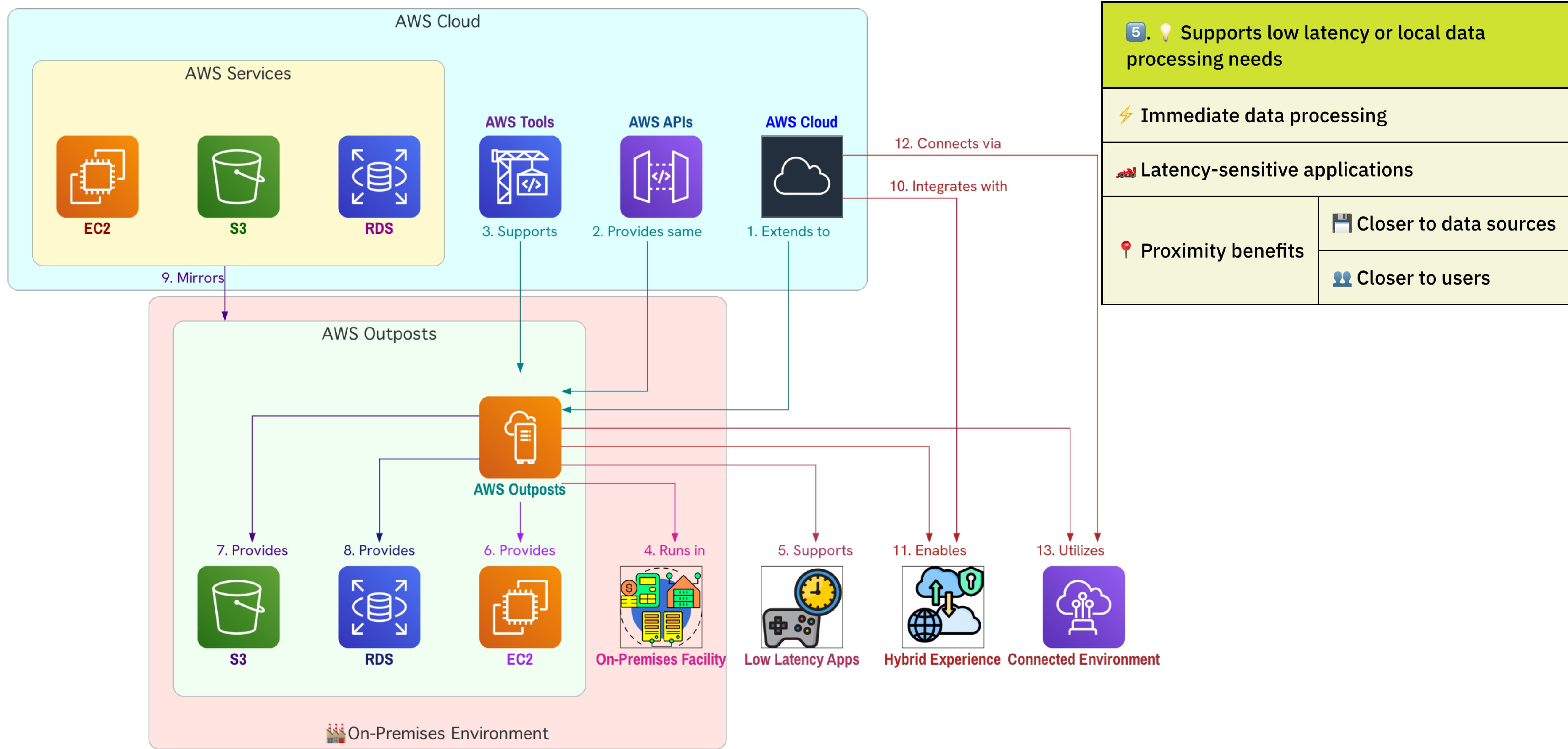


AWS Outposts

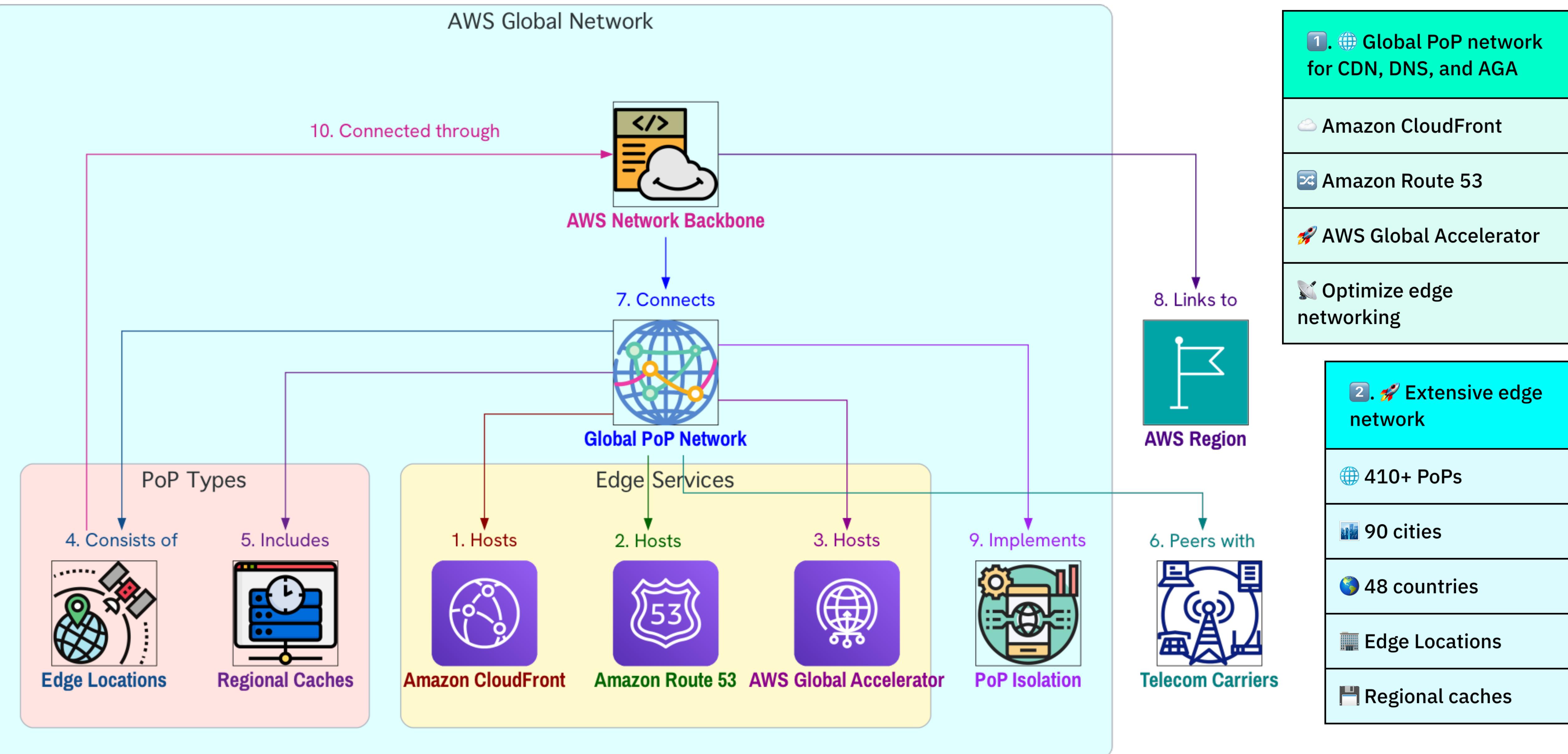


- 3. Consistent hybrid experience
- AWS cloud consistency
- On-premises consistency
- Easy management
- Easy integration
- 4. Designed for connected environments
- Cloud connectivity requirement
- On-premises workload necessity

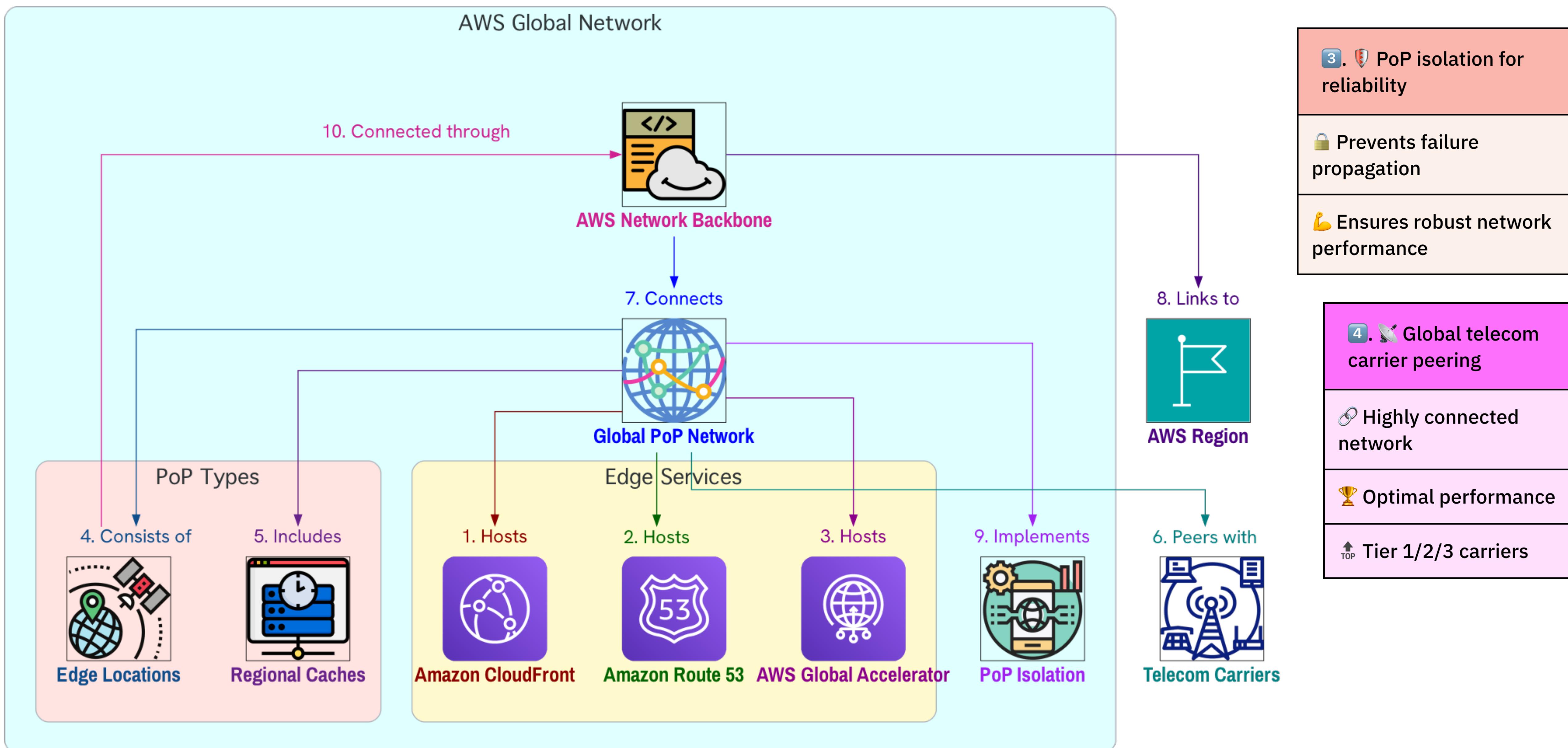
AWS Outposts



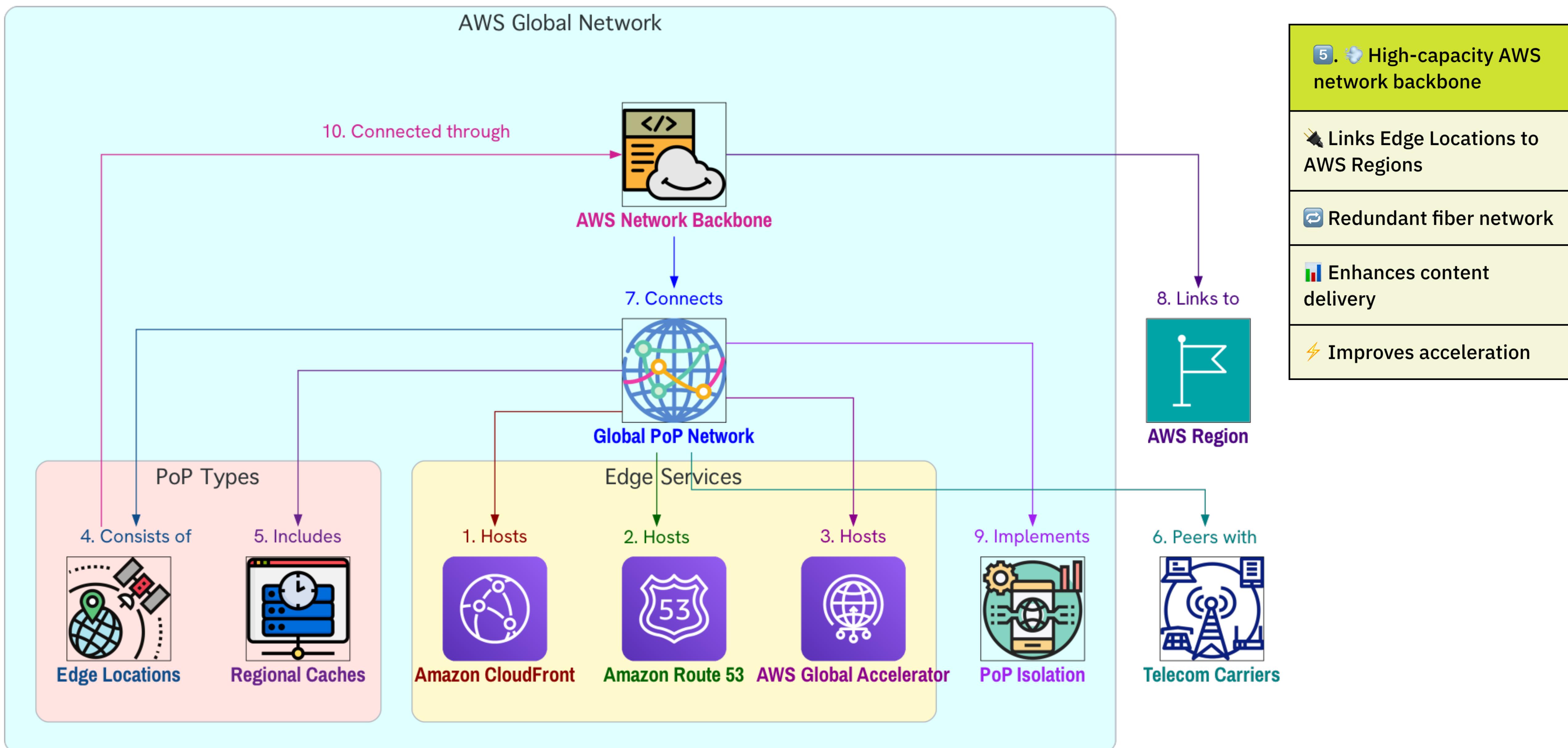
AWS Points of Presence



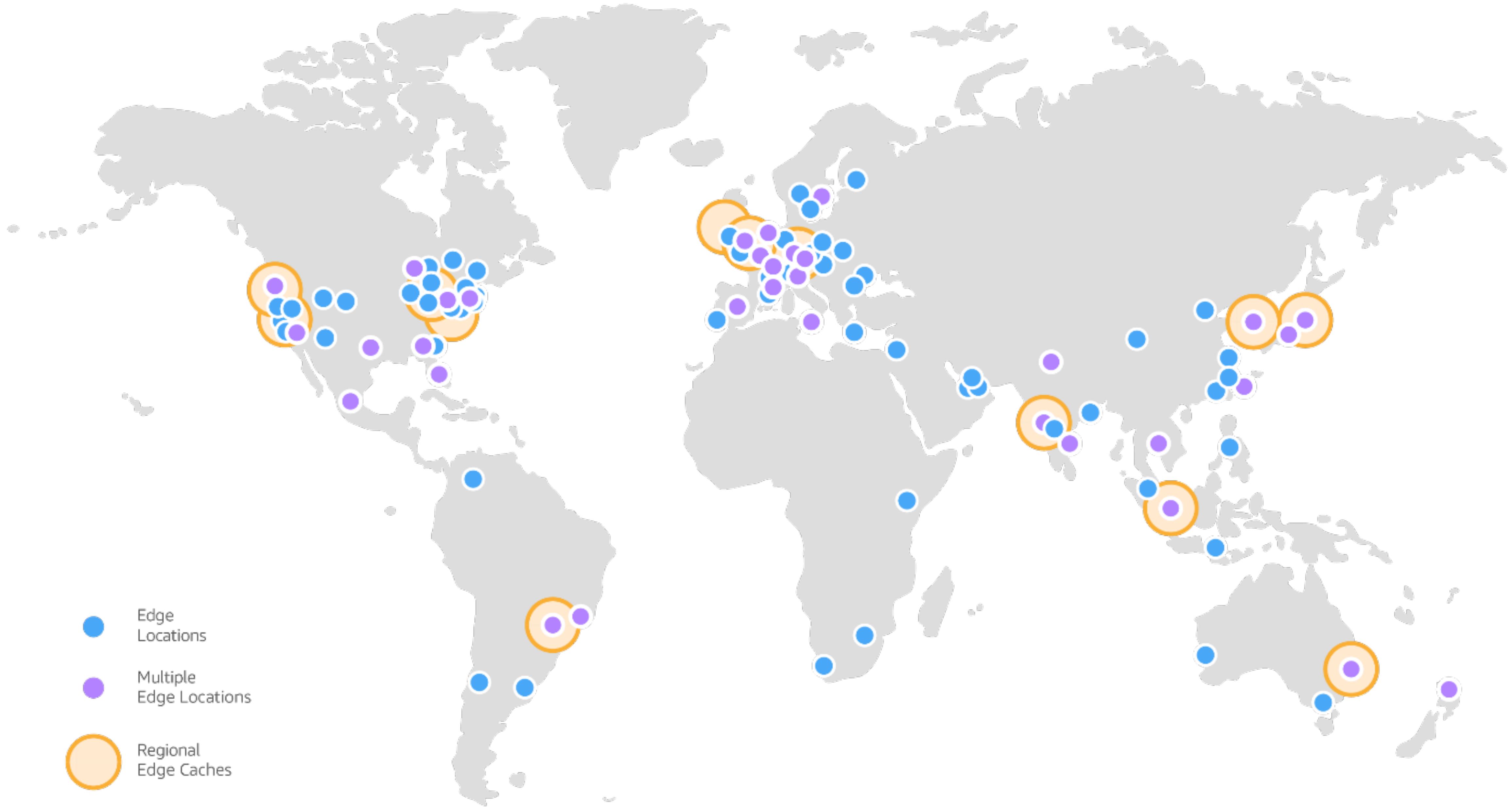
AWS Points of Presence



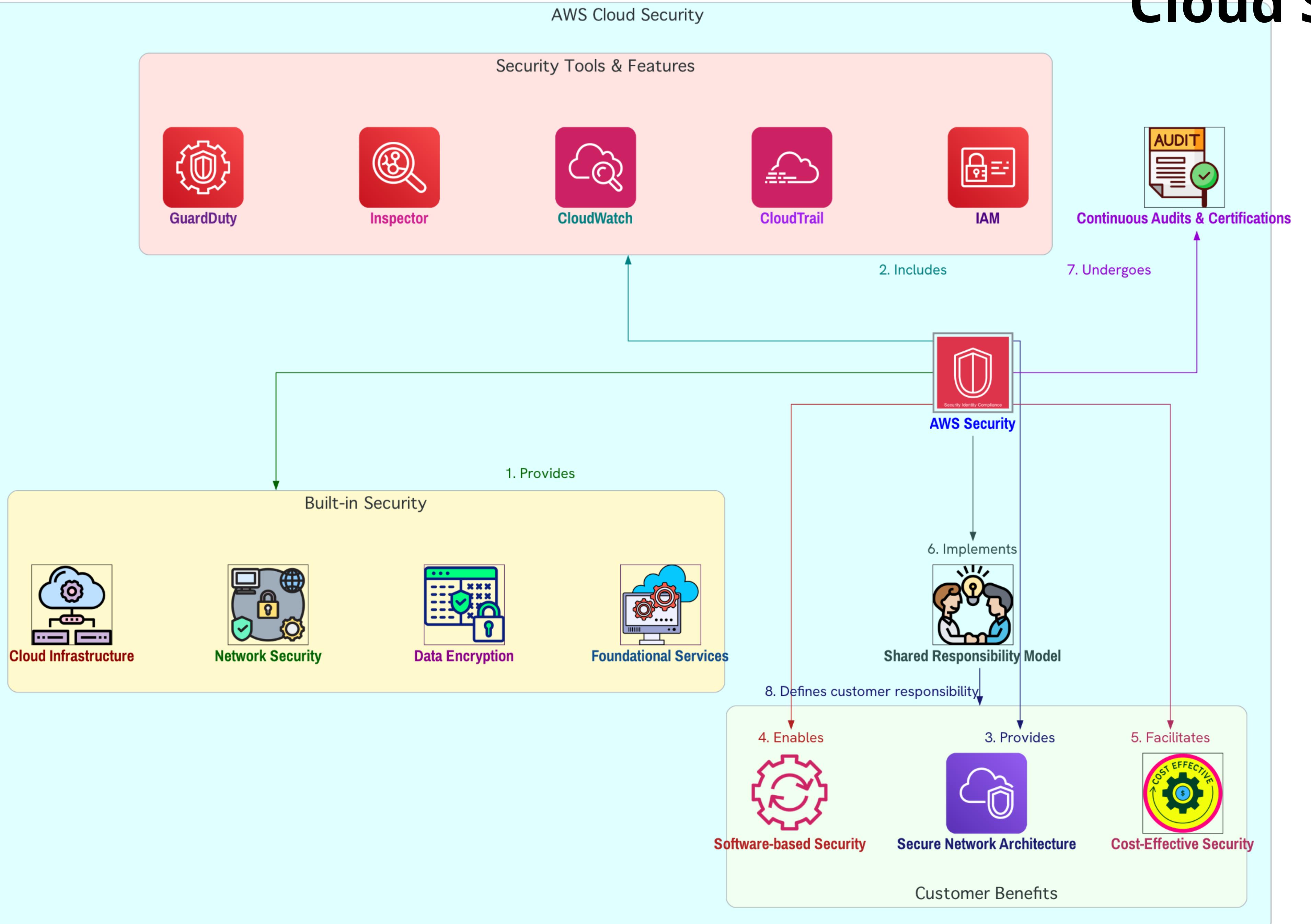
AWS Points of Presence



Amazon CloudFront Global Edge Network



Cloud Security at AWS



1. ↑ Highest security priority

2. Helps organizations leverage cloud securely

3. Ensures scalability and flexibility

2. Security built into cloud infrastructure

Foundational services

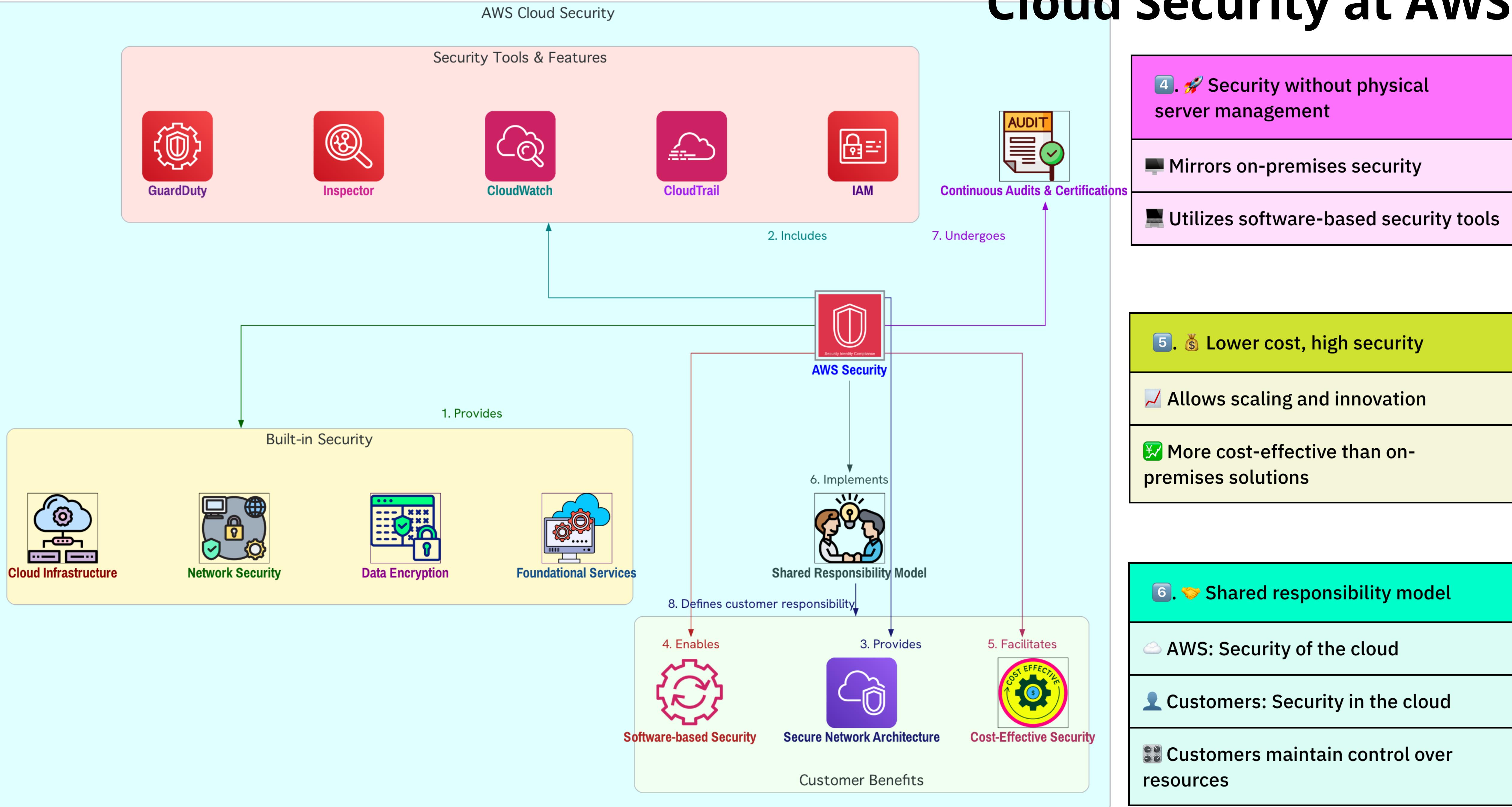
Enables tailored security measures

3. Benefits for AWS customers

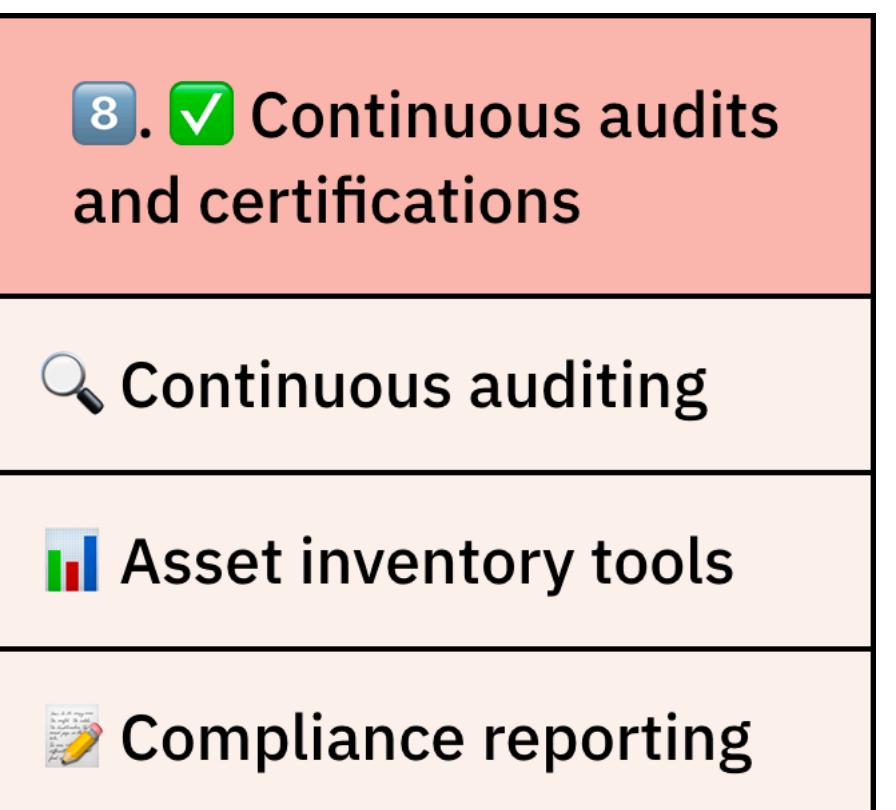
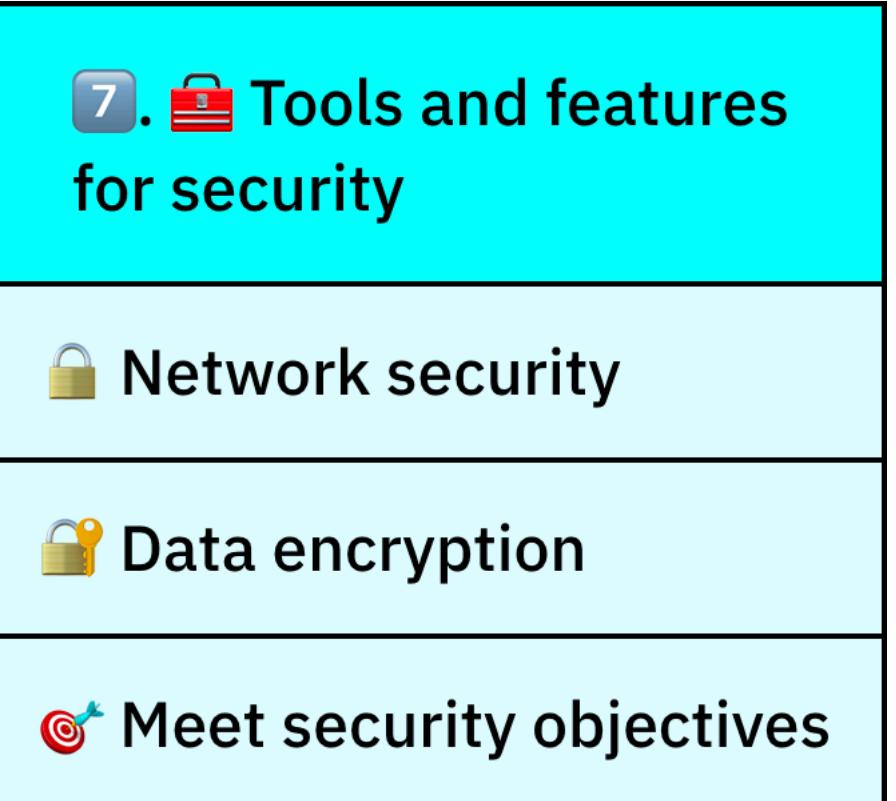
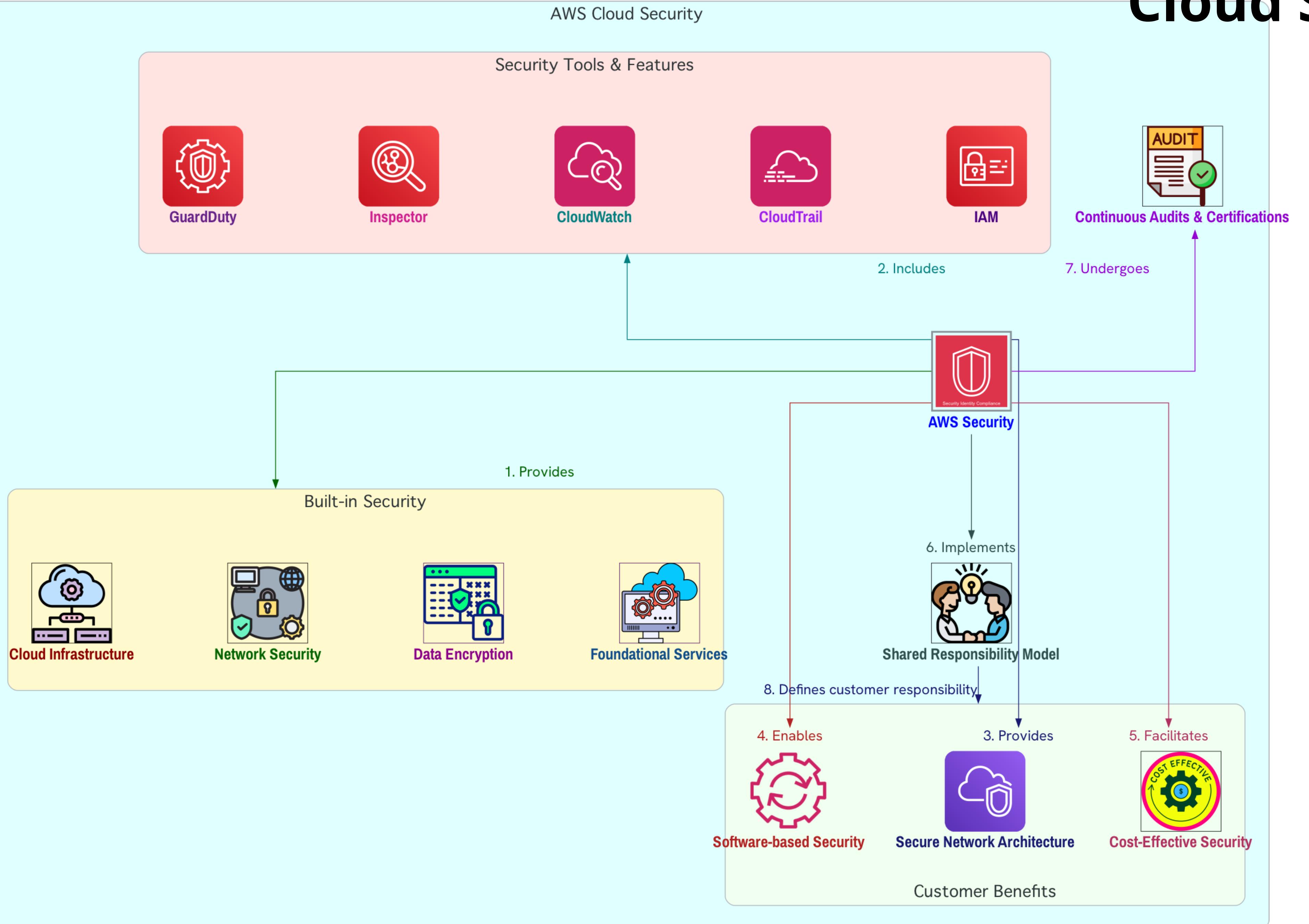
Network architecture for sensitive organizations

Security without physical maintenance costs

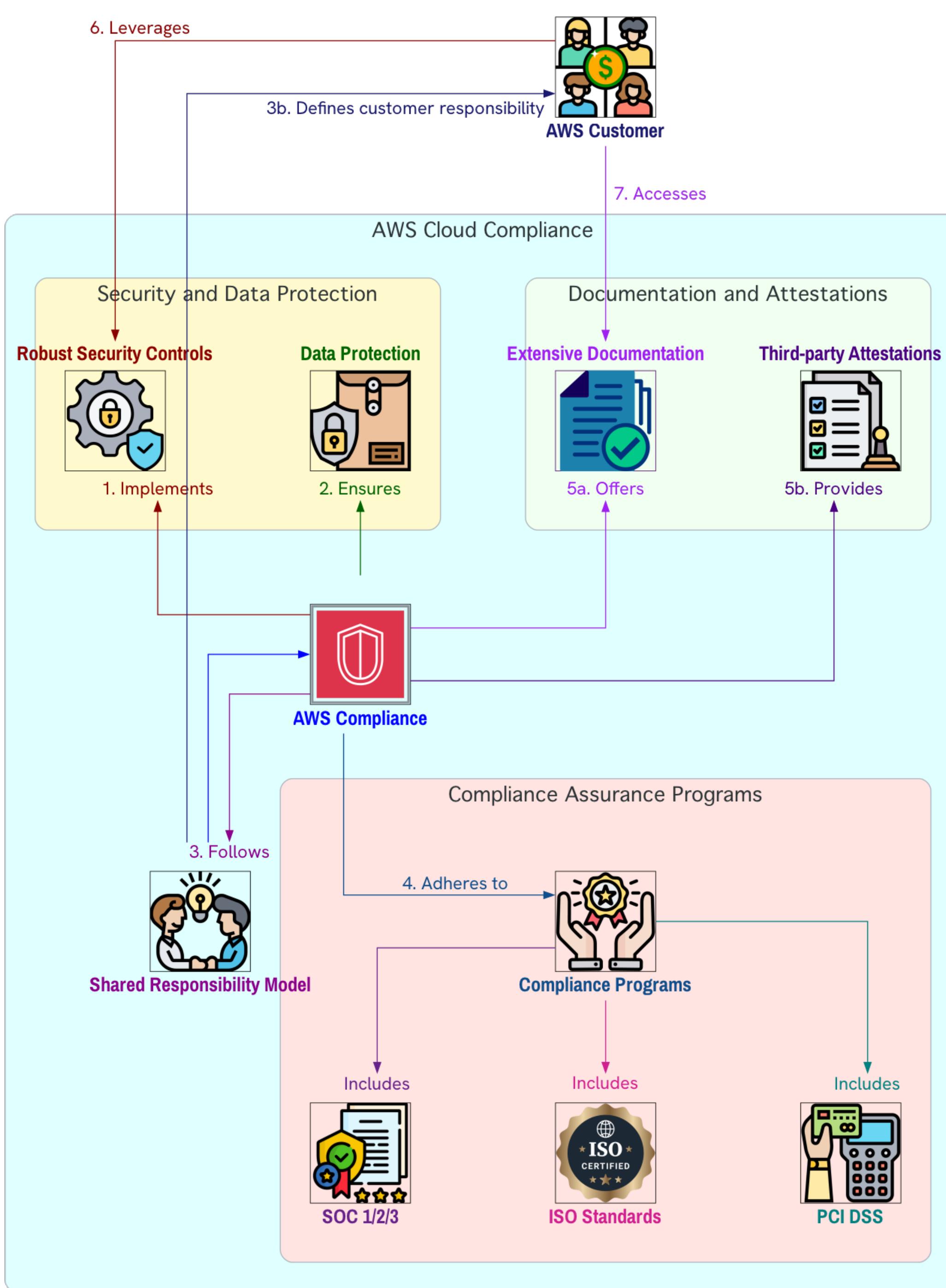
Cloud Security at AWS



Cloud Security at AWS



AWS Cloud Compliance



1. 🛡️ Robust controls for security and data protection

- 🔒 Comprehensive security measures
- 🔧 Data protection tools

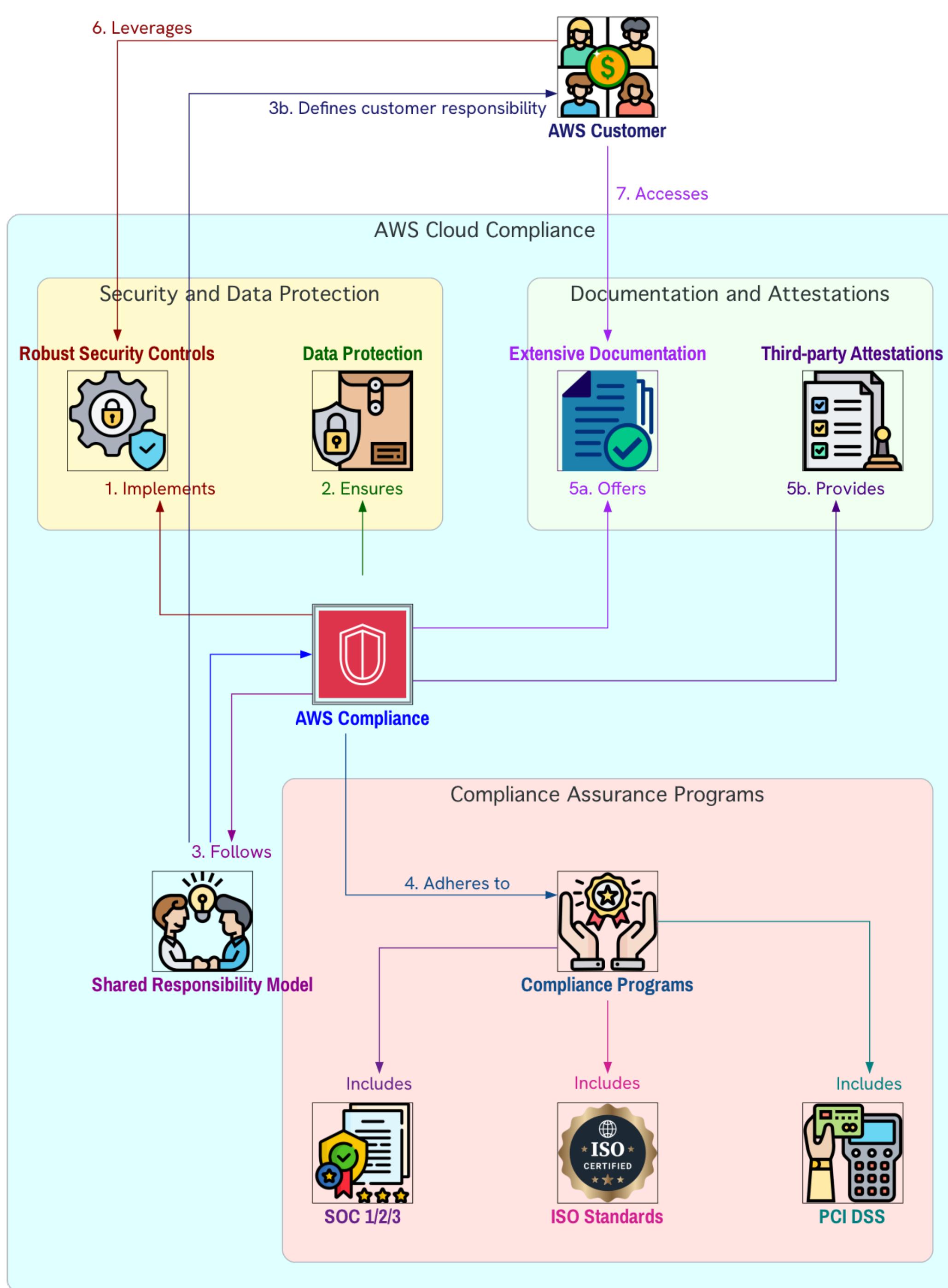
2. 🤝 Shared responsibility model

- 👥 Joint effort: AWS and customers
- 🔑 Emphasis on shared security

3. 📚 Access to security controls and best practices

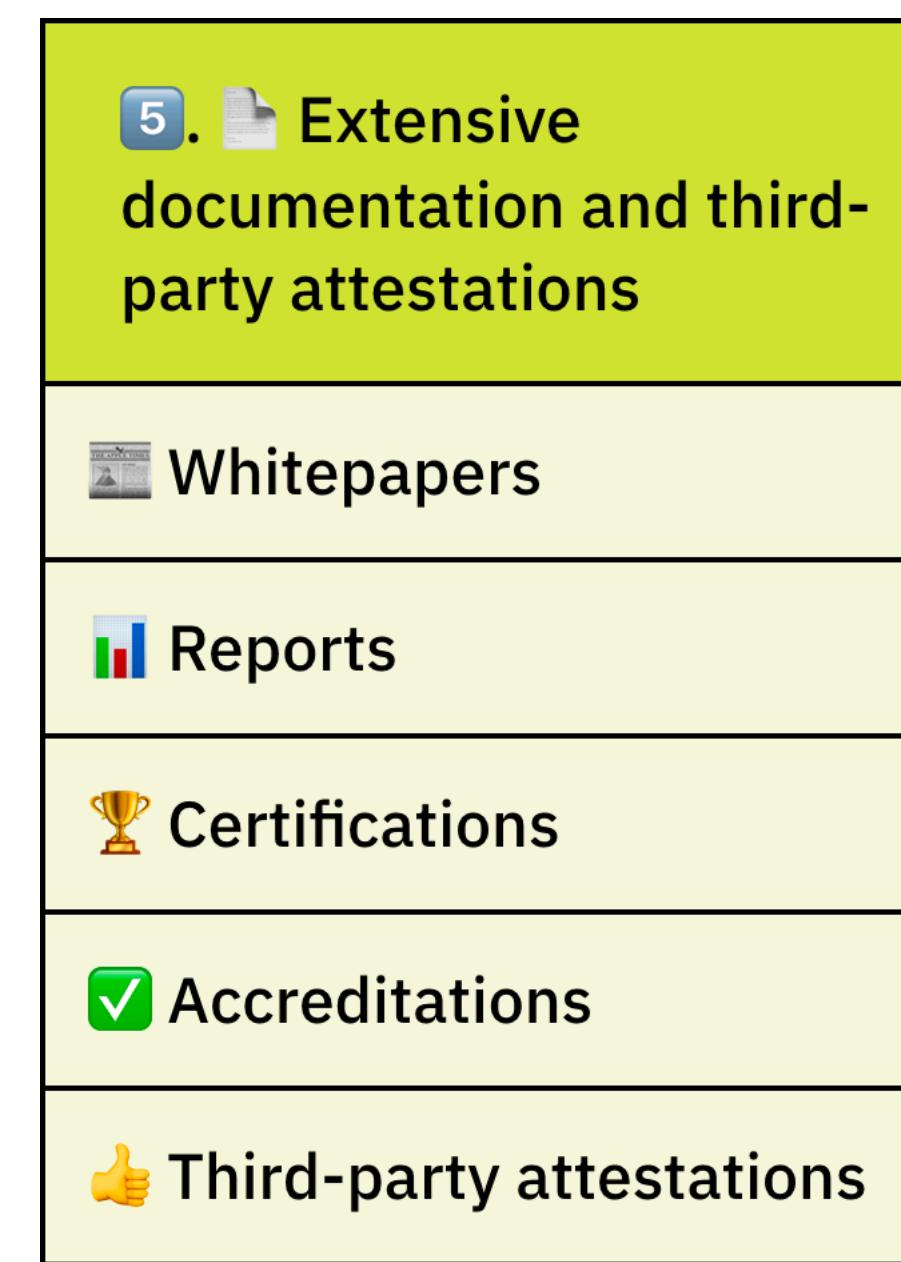
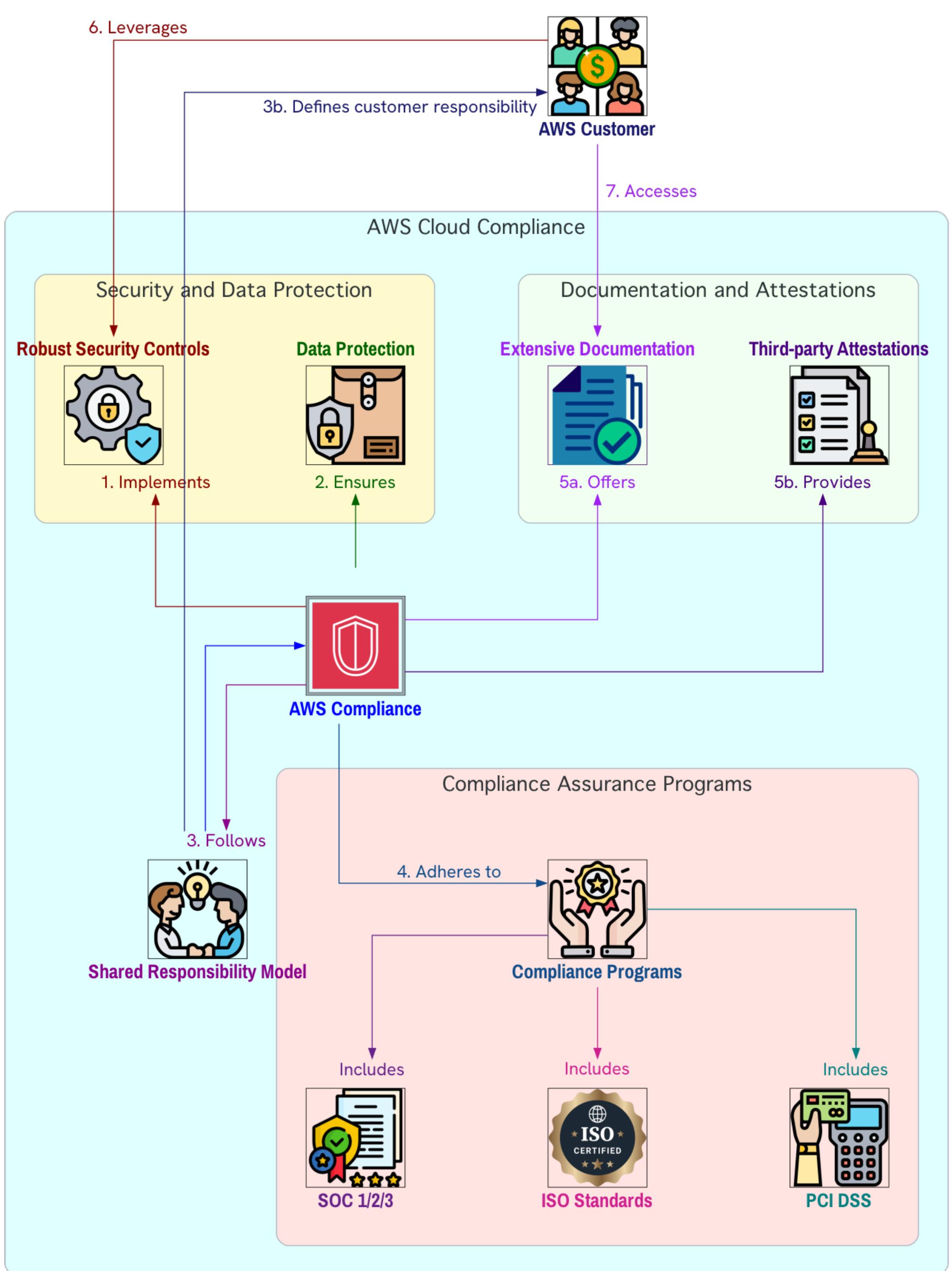
- 🔧 Leverage AWS security practices
- 🏗️ Built on AWS infrastructure

AWS Cloud Compliance

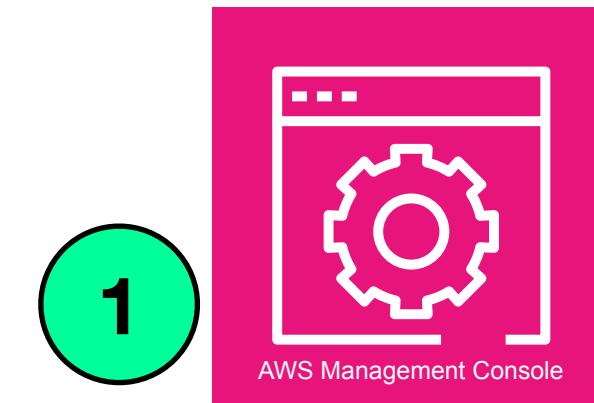


4. 🏆 Compliance with major assurance programs	
SOC compliance	SOC 1/ISAE 3402 SOC 2 SOC 3
Government standards	FISMA DIACAP FedRAMP
PCI DSS Level 1	
ISO standards	ISO 9001 ISO 27001 ISO 27017 ISO 27018

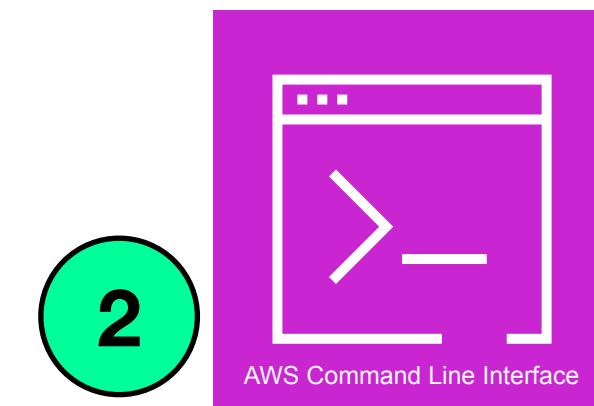
AWS Cloud Compliance



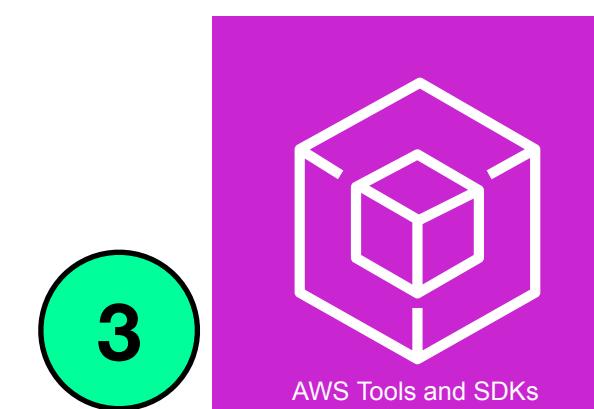
Accessing AWS services



AWS Management Console



AWS Command Line Interface



Software Development Kits



**Thanks
for
Watching**