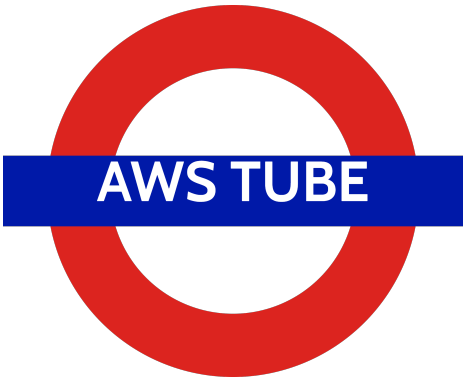

Figure 1: CLICK HERE TO ENTER STATION

Recovery Sheet 13

SJ Green

Recovering from the session delivered on the night of Wednesday 16th April 2025. We talked about Route 53 and Outposts. You can view the recovery sheet for the previous week here.

1 Active-Active

Description

1. A **Content Delivery Network (CDN)** is a geographically distributed network of proxy servers and their data centres [Wikipedia]. It is sometimes said that it stands for Content *Distribution* Network. I suggest always using the term "Delivery" because this emphasises the experience of the end user; CDNs exist to make sure content reaches users quickly (*very* quickly, deli*very*) and reliably.

   The first CDN was founded at MIT by Tom Leighton in 1998 and student Daniel Lewin. Called Akamai, it was created to solve what they called the "World Wide Wait", referring to the latency and congestion problems plagueing early web browsing. Then, Speedera Networks was founded in 1999. Mirror Image Internet was another early CDN, which focussed on media companies. Amazon CloudFront emerged early in AWS history: 2008.

The goal of CDNs is to provide high availability and performance ("speed") by distributing the service spatially relative to end users. Since coming into existence in the late 1990s as a means for alleviating the performance bottlenecks of the Internet, CDNs have grown to support a large portion of the Internet.

2. **Amazon CloudFront** is Amazon's CDN. The name makes sense: you *front* your origin with caches which are further out. (Don't get this confused with AWS CloudForm**ation**, which is about auto**mation**.) "Amazon CloudFront is a web service that speeds up distribution of your static and dynamic content, such as .html, .css, .js and image files, to your users. CloudFront delivers your content through a worldwide network of data centres called edge locations. When a user requests content that you're serving with CloudFront, the request is routed to the edge location that provides the lowest latency (time delay), so that content is delivered with the best possible performance" states the User Guide.

3. The **Domain Name System (DNS)** is "a hierarchical and distributed name service that provides a naming system for computers, services, and other resources on the Internet, or other Internet Protocol (IP) networks" [Wikipedia]

4. **Route 53**. Route 53 is the name of the AWS Product that provides DNS services. It was launched in 2010, the year IAM was launched. Customers create "hosted zones" that act as a container for four name servers. Amazon also offers domain registration services to AWS customers through Route 53.

5. **Route 53 Failover Routing Policy** This policy ensures that Route 53 does not send clients to failed resources - it "fails over" to the running resources. "When you have more than one resource performing the same function–for example, more than one HTTP server or mail server–you can configure Amazon Route 53 to check the health of your resources and respond to DNS queries using only the healthy resources" [User Guide].

   'For example, suppose your website, example.com, is hosted on six servers. There are two each in three data centres around the world. You can configure Route 53 to check the health of those servers and to respond to DNS queries for example.com using only the servers that are currently healthy" [AWS User Guide].

6. **Route 53 Geoproximity Routing Policy**. "Use when you want to route traffic based on the location of your resources and, optionally, shift traffic from resources in one location to resources in another". [User Guide] Proximity is the state of being near in space or time. It is a relationship between client and resource. *So, we aren't solely considering the location of the user.*

"Geoproximity routing lets Amazon Route 53 route traffic to your resources based on the geographic location of your users and your resources. It routes traffic to the **closest resource** that is available. You can also optionally choose to route more traffic or less traffic to a given resource by specifying a value, known as a *bias*. A bias expands or shrinks the size of the geographic region from which traffic is routed to a resource" [User Guide].

7. **DDoS attack**. Description goes here.
8. **AWS WAF**. Description goes here.
9. **AWS Outposts** Description goes here.
10. **Term 10** Description goes here.

2 Warm Standby

1. **Content Delivery Network (CDN)**.
2. **Amazon CloudFront**.
3. **Domain Name System (DNS)** Description goes here.
4. **Route 53**. Description goes here.
5. **Route 53 Failover Routing Policy** Description goes here.
6. **Route 53 Geoproximity Routing Policy**. Description goes here.
7. **Content Delivery Network (CDN)**. Description goes here.
8. **DDoS attack**. Description goes here.
9. **AWS WAF** Description goes here.
10. **AWS Outposts** Description goes here.

3 Pilot Light

The pilot comes aboard ships in unfamiliar waters to sort out shit.

1. **Content Delivery Network (CDN)**.
2. **Amazon CloudFront**.
3. **Domain Name System (DNS)** Description goes here.
4. **Route 53**. Description goes here.

5. **Route 53 Failover Routing Policy** Description goes here.
6. **Route 53 Geoproximity Routing Policy**. Description goes here.
7. **Content Delivery Network (CDN)**. Description goes here.
8. **DDoS attack**. Description goes here.
9. **AWS WAF** Description goes here.
10. **AWS Outposts** Description goes here.

4 Backup

1. **Content Delivery Network (CDN)**.
2. **Amazon CloudFront**.

   Green, Sam (2024). Setting up CloudFront. Available at: `https://www.youtube.com/watch?v=Vb1QQT5v6xg`

   Mishra, Shailu (2019). Maintaining security on the unpredictable internet. Available at: `https://www.youtube.com/watch?v=pq6_Bd24Jsw`
3. **Domain Name System (DNS)** Description goes here.
4. **Route 53**. Description goes here.

   Willey, Holly (2017). How to help protect dynamic web applications against DDoS attacks by using Amazon CloudFront and Amazon Route 53. Available at: `https://aws.amazon.com/blogs/security/how-to-protect-dynamic-web-applica`

   Alias Records, Abysmal. Available at: `https://studio.youtube.com/video/dexsHYeh9oo`

   McCullagh, Gavin (2019). Deep Dive on DNS in the Hybrid Cloud. *Reinvent 2019* [Conference]. Available at: `https://www.youtube.com/watch?v=_Z5jAs2gvPA&t=250s`

   Green, Sam (2025). McCullagh Quiz 1. Available at: `https://concentric-2903432.s3.eu-west-2.amazonaws.com/Firmament/2010/Route_53/McCullagh_quiz_1.pdf`

5. **Route 53 Failover Routing Policy** Description goes here.

   Green, Sam (2025). Question on ALB and Route 53. Available at: `https://youtu.be/n0NmAzbvOrQ`

6. **Route 53 Geoproximity Routing Policy**. Description goes here.
7. A **Content Delivery Network (CDN)** is a geographically distributed network of proxy servers and their data centres [Wikipedia].
8. **DDoS attack**. Description goes here.
9. **AWS WAF** Description goes here.
10. **AWS Outposts** Description goes here.

Liguori, Anthony (2019). What is an AWS Outposts rack? Available at: `https://www.youtube.com/watch?v=Q6OgRawyjIQ&ab_channel=AmazonWebServices`

Cooke, Tatiana (2021). Introducing AWS Outposts Servers. *Reinvent 2021* [Conference]. Available at: `https://www.youtube.com/watch?v=rIa993qznOg&ab_channel=AWSEvents`