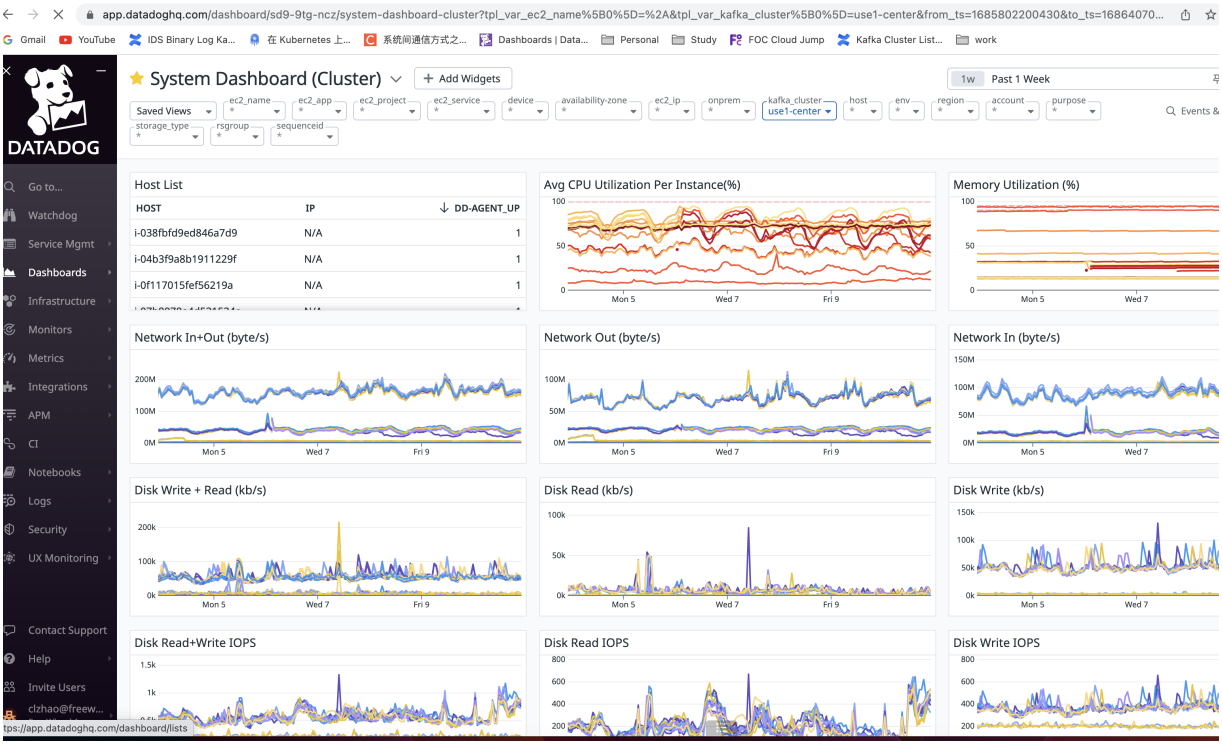
Three Month Probation Review

Three Month Probation Goal-Setting Check-in

Goals Completed:

- **Basic and core concepts of Kafka**

  For Brokers, we focus on the system level health.

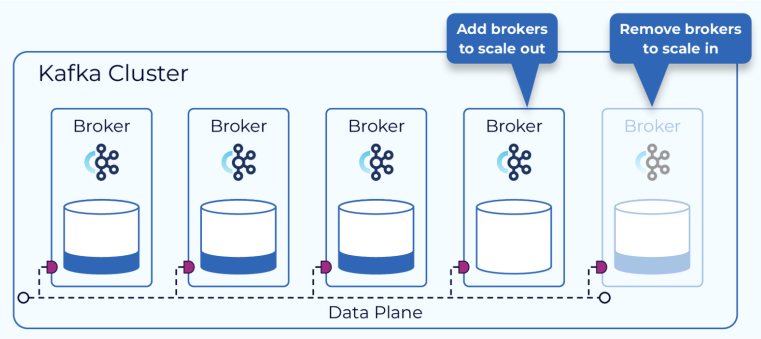


  a. Network in/outtopic condition)
  b. EC2 to EBS throughput
  c. EBS throughput/IOPS (throughput = IOPS*Avg IO size)
  d. CPU util

- Scale in/out

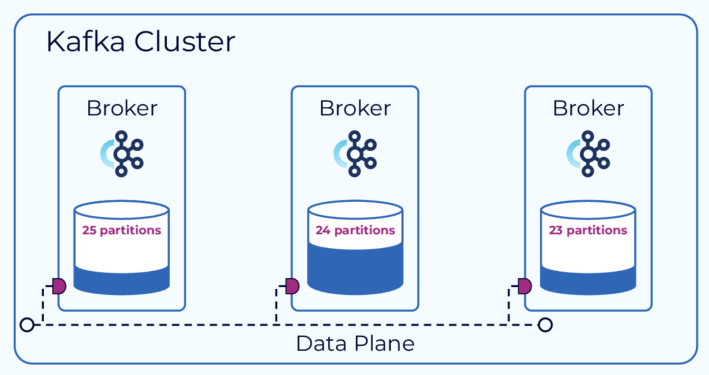
  Scenario: Fixed number of brokers in the cluster decided by the traffic design.

Cluster Scaling



Kafka is designed to be scalable. As our needs change we can scale out by adding brokers to a cluster or scale in by removing brokers. In either case, data needs to be redistributed across the brokers to maintain balance.

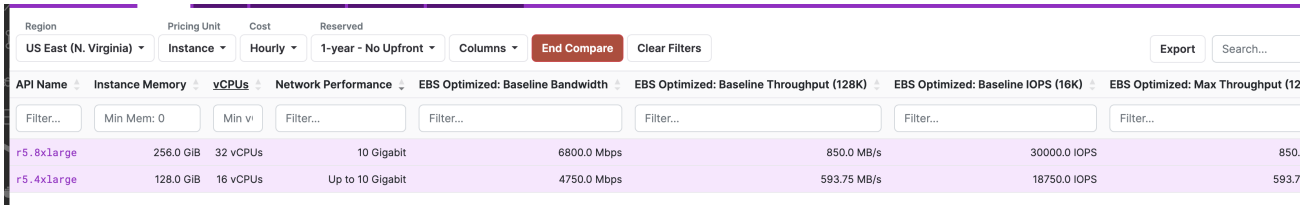
Unbalanced Data Distribution



We can also end up needing to rebalance data across brokers due to certain topics or partitions being more heavily used than the average.

- Scale up/down

  According to the real-time traffic of the day, maybe bump into **live event, burst traffic**, in this case we need to scale up the broker in the cluster. For example r5.4xlarge-r5.8xlarge.

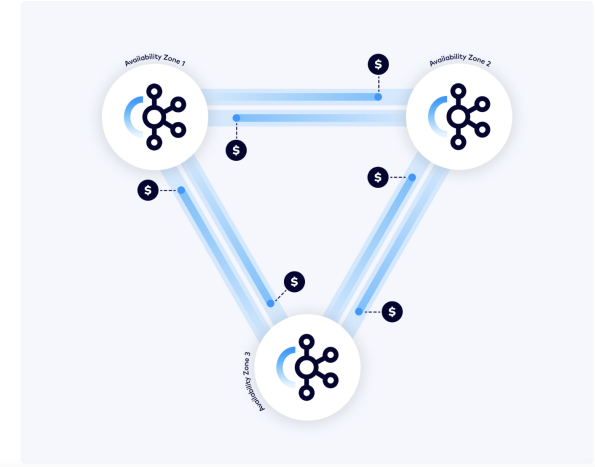


For Inner cluster level, there are roles for brokers such as leader and followers located in the different AZs, in that we need to consider the case that transfer data across AZs which will charge additional fee.

  - Data compression**(zstd)**
  - Network throttle (reassign, bootstrapping)

    The **network out** will be shared by the consumers and followers fetching data meanwhile followers will read the **Leader's disk** for catching up data

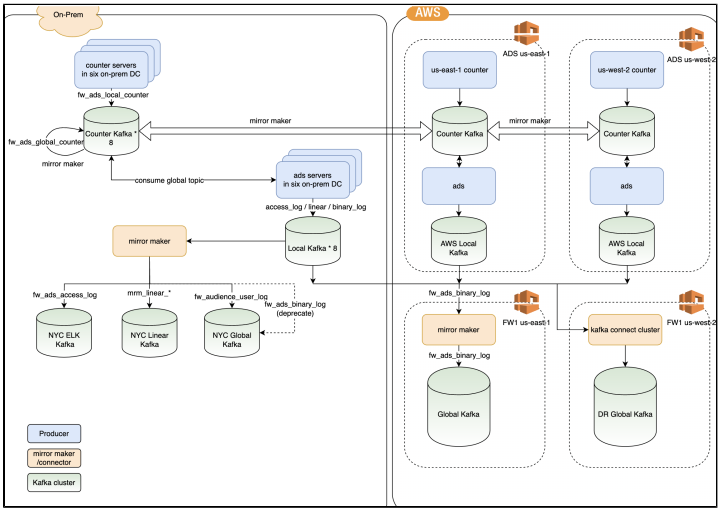
Networking: The big one



For cross region data transfer, we need to communicate to the Eng team for a certainty of the the topics will be used in the data flow.

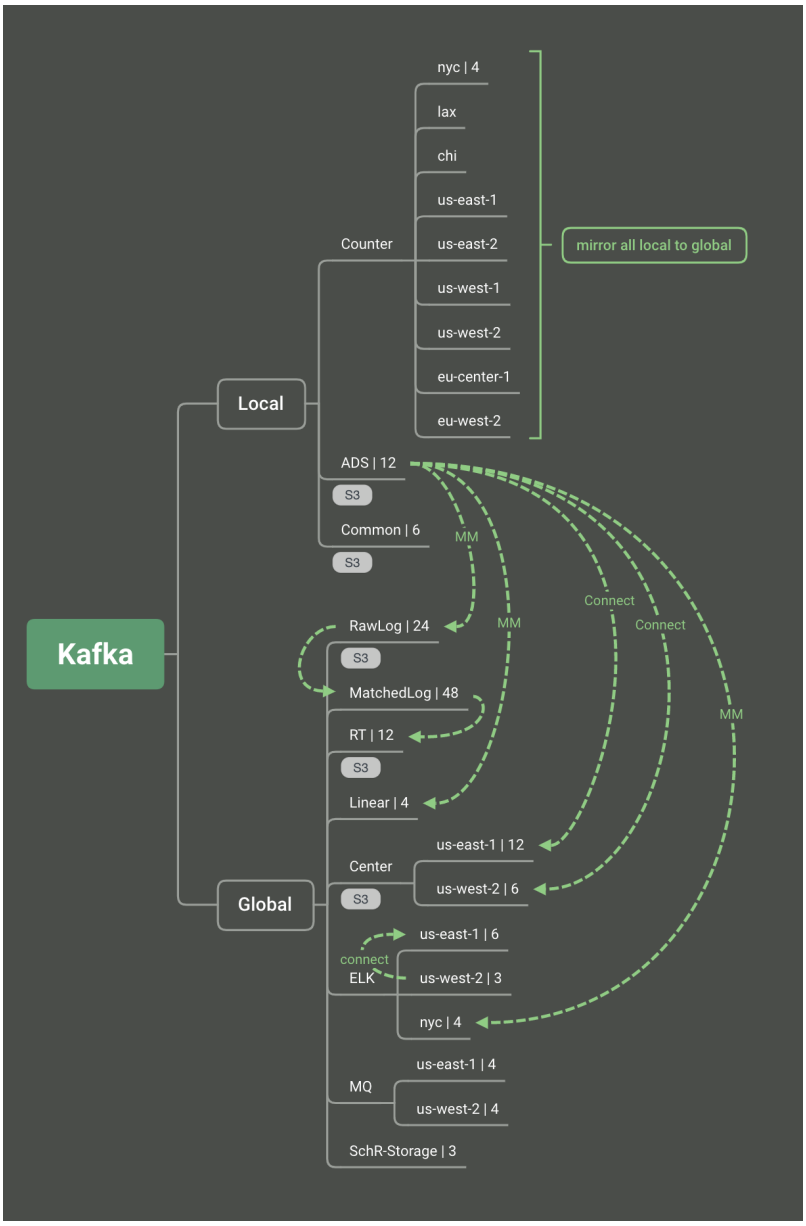
For example,From Local Kafka to Global Kafka.(from us-west to us-east)

- Create new topic: understanding the topic use scenarios and the traffic size.

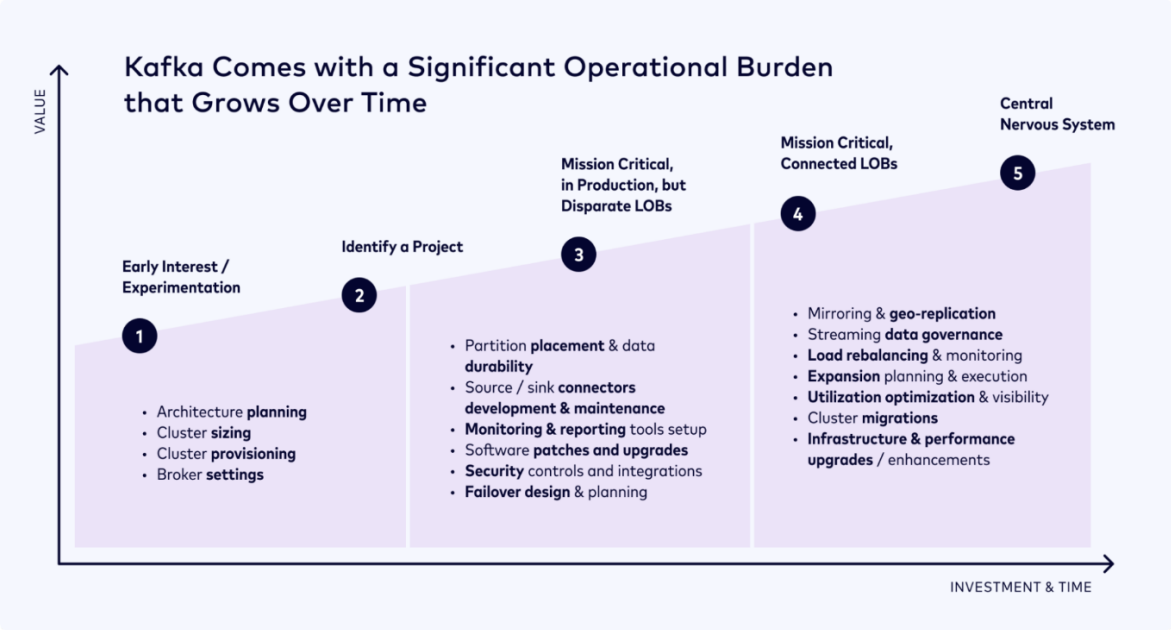


- Network Latency due to across regions
- **Better understanding of critical services and important customers in the production**
    - Clusters:
        - 19 Local clusters plus on-prem (NYC,LAX,CHI)
            - ADS
                - Counter
                - ADS(binlog)
            - Non-ADS(Common)
        - 12 Global clusters

      Approximately 500 hosts in total.



- **Basic Knowledge of AWS resource used by Kafka and provision**
  - Scale out cluster (python script-aws cli)
  - Provision new connect cluster via FOC and TF(SG and IAM policy)
- Development Goal Check-in
  - Master Kafka infra online knowledges.
  - Maintain the HA of Kafka service. (Independent working)
  - Kafka management automation development.
- Personal Take Away in 3 Month



- From technical aspect, we are in the 4&5 stage in the above picture
- I need to strengthen and well prepared for the production changes, need to understand the data flow.
- Build good connections with Engineer teams and provide better infra service/solutions for our business.

- Reuse the past experiences
  - FreeWheel NOC
    - Watching the coming alerts and abnormal behaviors of the services.
    - Configure the alerts.
    - IPA jumpserver access control.
  - Microsoft Dynamics365 CRM Tech Support
    - 50% Live communicate with global customer for info collection(tracing, log)
      - Actively response
      - Working across team(Sec, AI, contract, etc)
      - Escalation
    - 50% Problem resolving, email wording
  - SA, Consultant, CSAM, Incident Manager, Product Manager, Project Manager, Tech Support **working as one team and forming a good cycling**
    - Playing different roles, try not to limit only with one role Scheduling using case sharing)

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    - **Thinking what value we can provide to other positions(customers)**

Ref https://developer.confluent.io/learn-kafka/architecture/cluster-elasticity/

MRM Architecture Review 2023H1 - Kafka

https://instances.vantage.sh/?filter=r5.4xlarge|r5.8xlarge&compare_on=true&selected=r5.4xlarge,r5.8xlarge

https://www.confluent.io/blog/understanding-and-optimizing-your-kafka-costs-part-2-development-and-operations/