

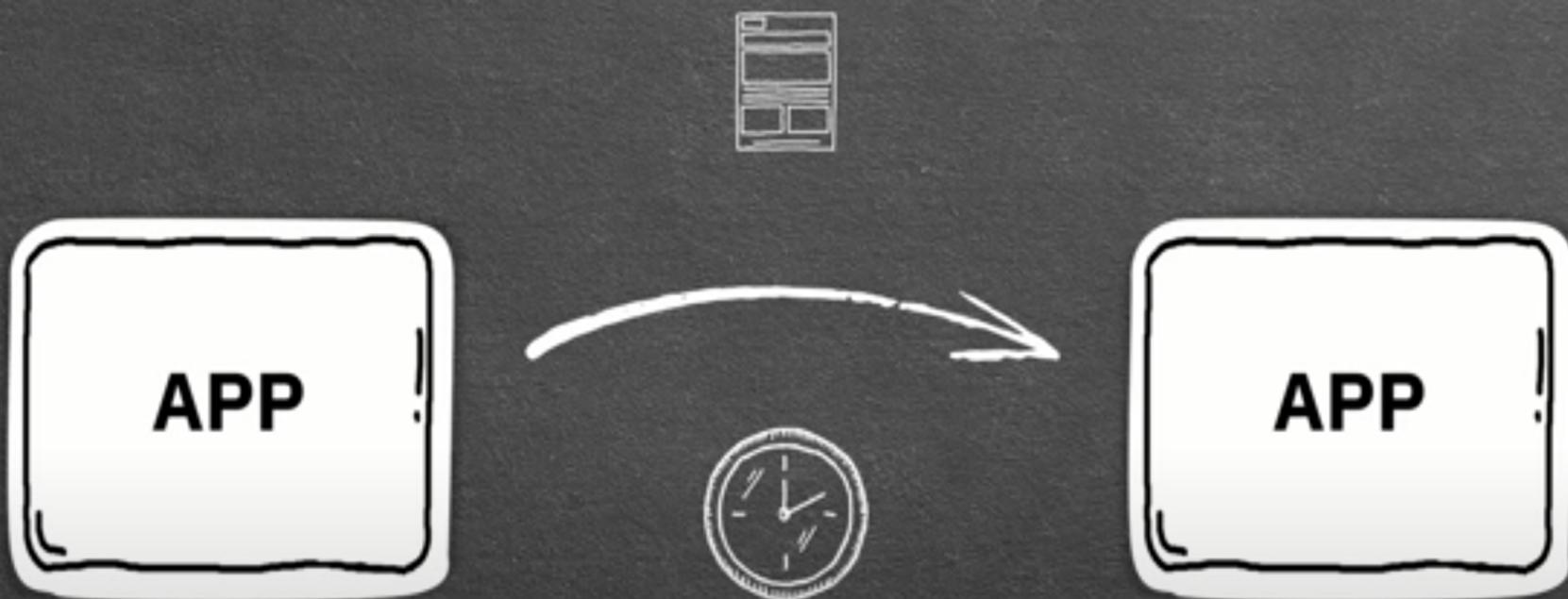
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Developer Advocate - IBM

IBM Cloud

# Messaging essentials



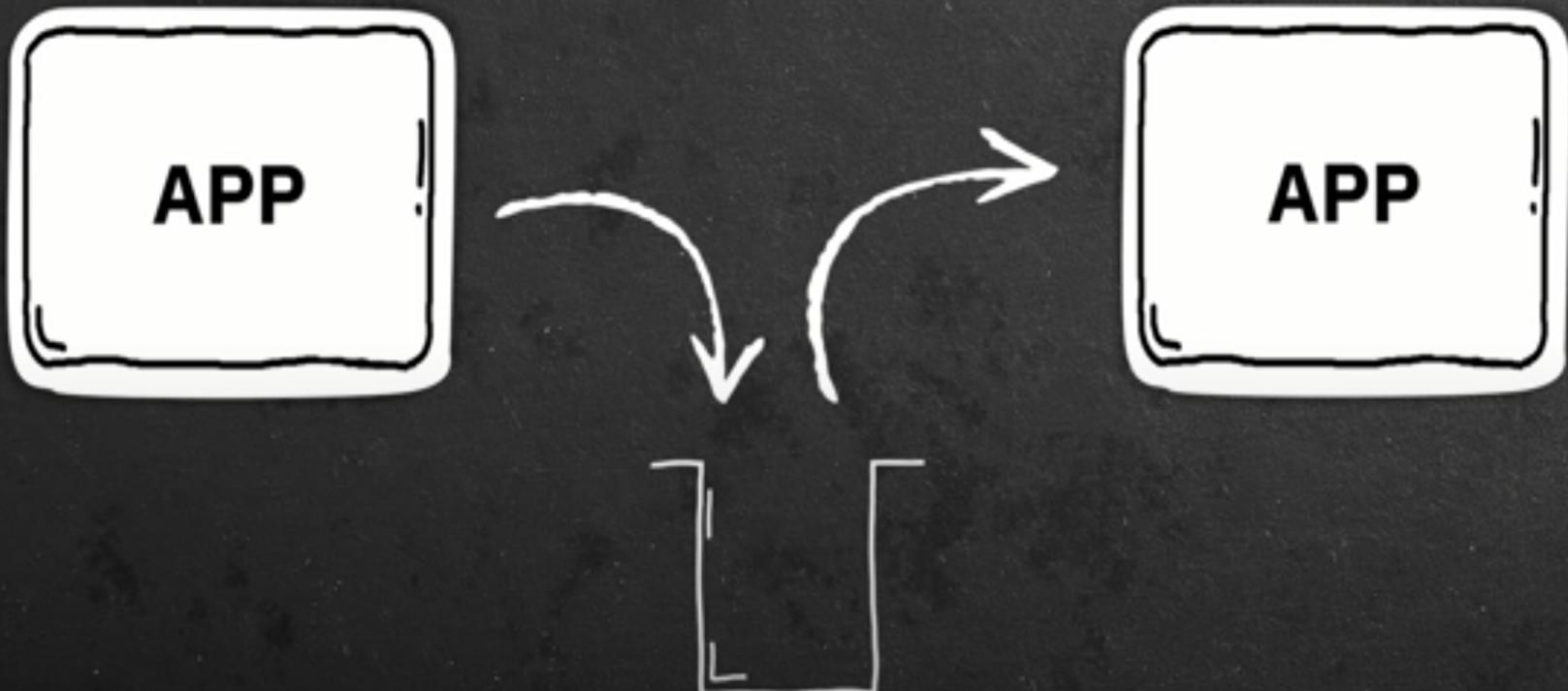
# Traditional connectivity



# Traditional connectivity



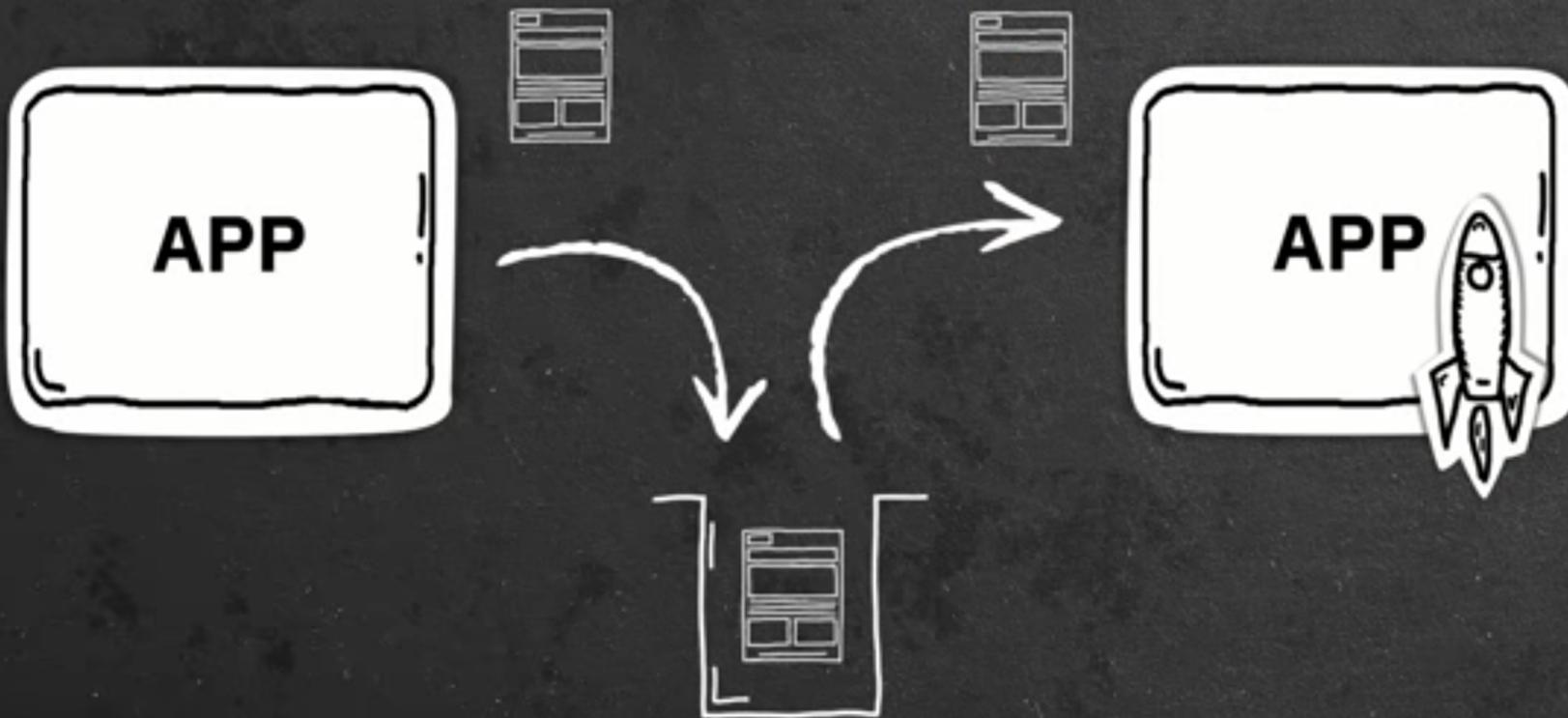
# MQ approach

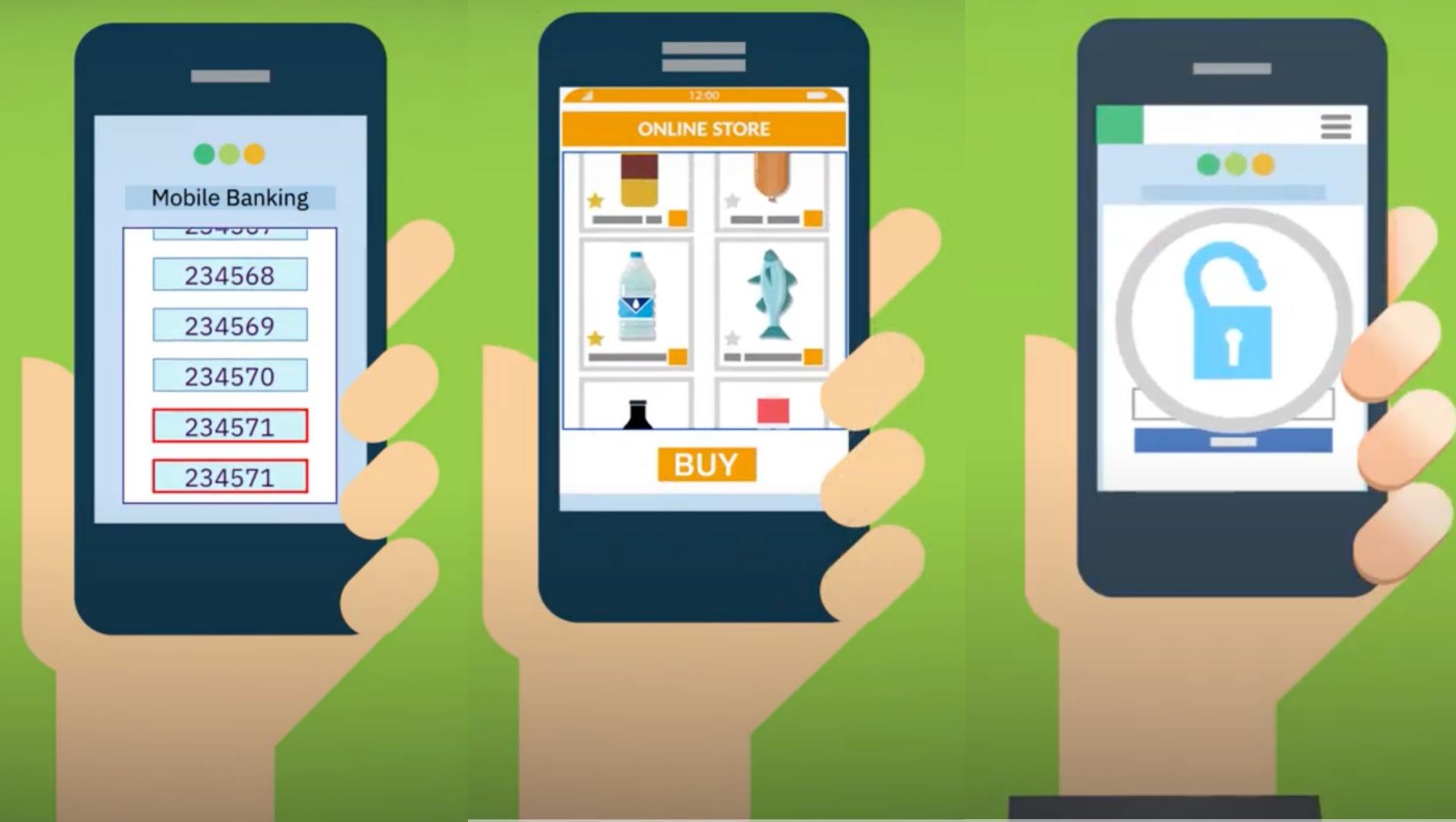


# Traditional connectivity



# MQ approach





# Messaging

There are essential capabilities needed of every messaging solution

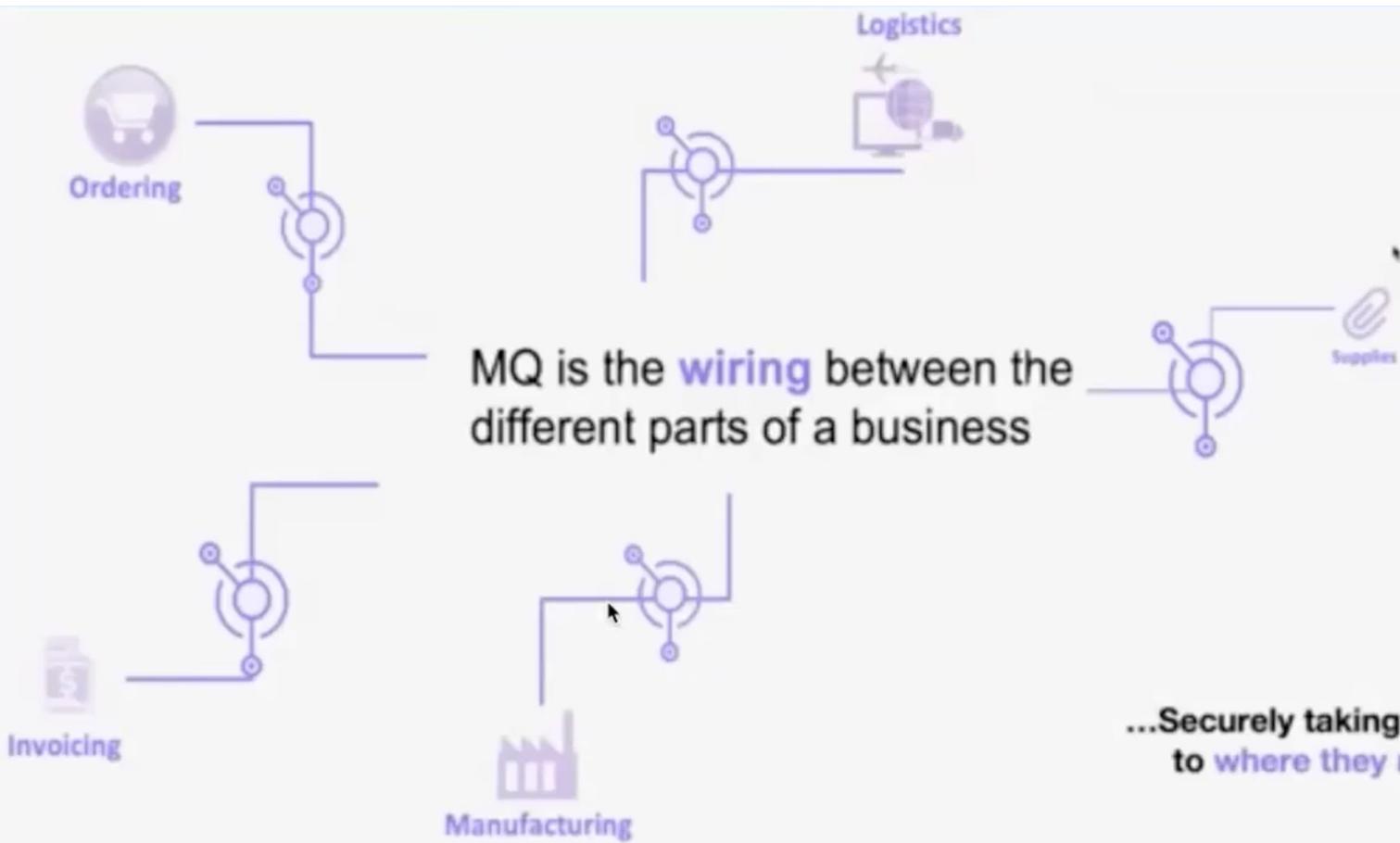
## Essential capabilities

High availability

Scalability

Security

Management

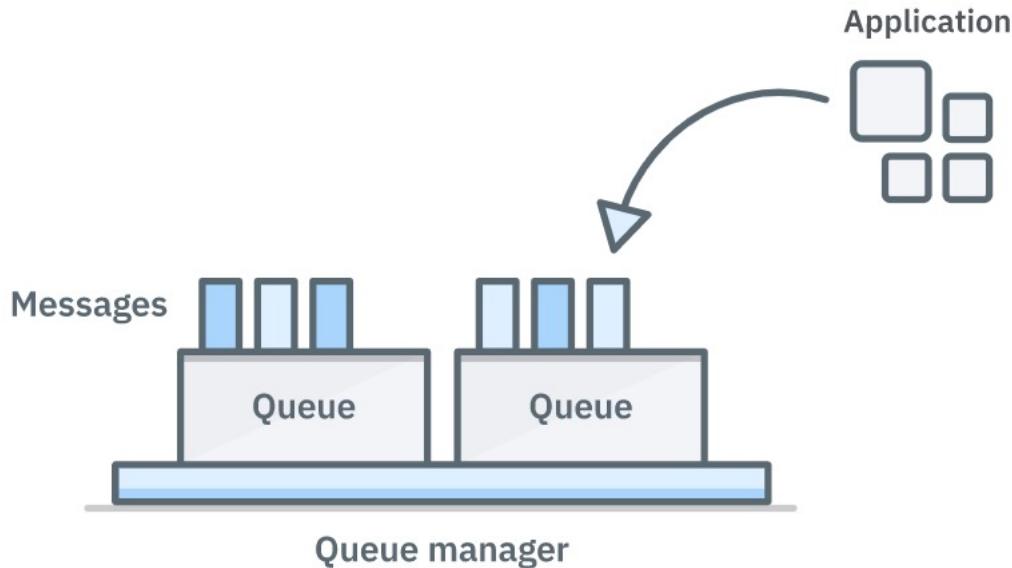


...Securely taking data and files  
to where they need to go!

# MQ Introduction

- Enables applications and services to communicate reliably without calling each other directly
  - Reliable communication “black box”
  - Supports once and only once message delivery
  - Support distributed Environment
  - Different security options

# MQ Essentials

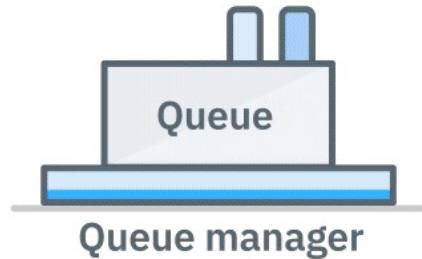


1. **Messages** – The packets of data produced and consumed by applications.
2. **Queue** – An addressable location where messages are delivered and stored reliably until they need to be consumed.
3. **Queue manager** – This is the actual MQ engine, the server that hosts the queues.
4. **Channels** – connect with different queue manager

# Message Queues Decouple Applications



Placing a message queue between two or more applications means that the applications are not communicating directly.



Whether one application goes away, or the consuming app is unable to keep up with a temporary spike in requests, message queuing provides a shock absorber that can deal with any issues on either side.

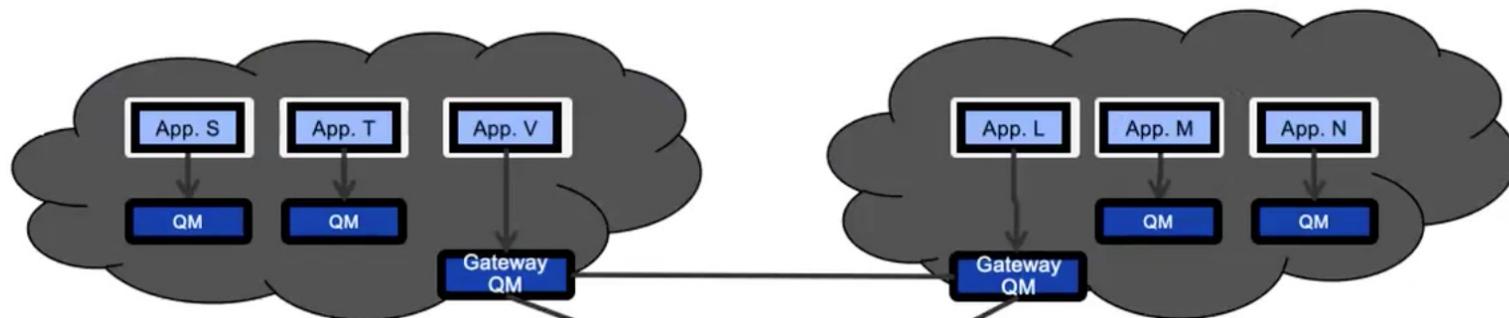


As a result, adopting messaging means that applications do not have to be available at the same time, as the queue provides a neutral place where they can exchange data.

This model is known as **asynchronous messaging**.

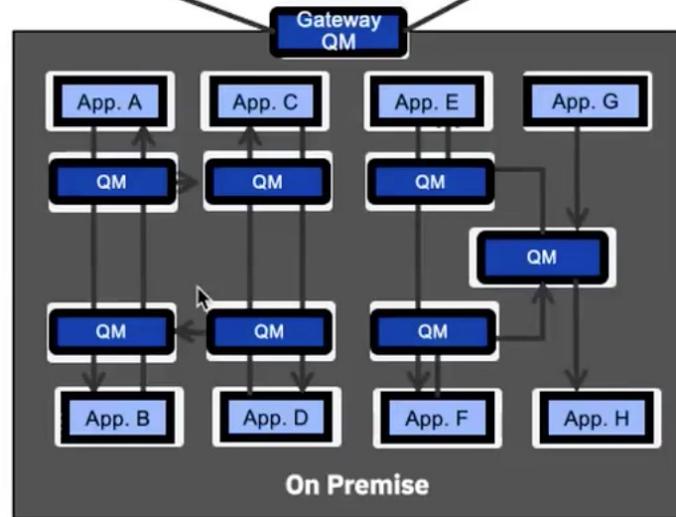
# IBM MQ Architecture

A *multi-environment messaging architecture*



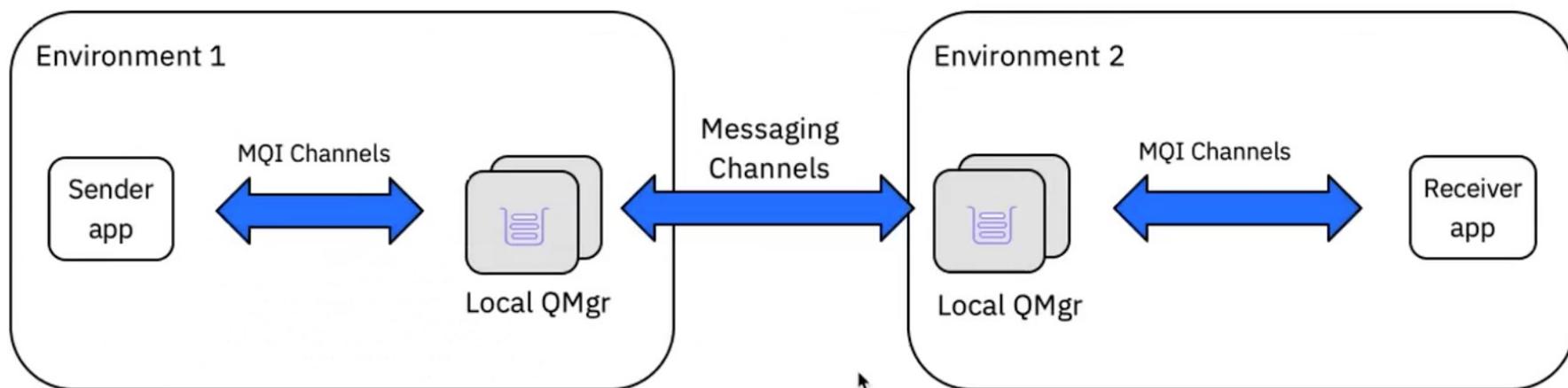
## Characteristics

- Gateway Queue Managers acts as entry points into disparate environments
- Enables P2P connections between any clients in any environment



# MQ Assured Delivery

- MQ allows for reliable messaging between systems by:
  - Making messaging available within each environment to assure local access
    - Neither sender nor receiver will be affected by temporary network disruption between environments
  - Seamlessly handling temporary network disruptions between environments
    - Upon network restoration IBM MQ will automatically continue message flow



# Security Options

Identification and authentication

Authorization

Auditing

Confidentiality

Data integrity

Cryptography

TLS security

Channel authentication records

Message security



# IBM Messaging: A complete messaging solution



Once and once  
only Delivery



Fine grain  
messaging



Fine grain  
events



Events



Scalable  
Subscription



Stream  
History



**IBM MQ**

Focused on message exchange

**IBM Cloud Pak for Integration**

**Apache Kafka**

Focused on streaming of events



## ***Mission-critical application messaging***

A message platform to simplify and accelerate integration of diverse applications and business data across multiple platforms with multiple messaging styles.

### **Key use cases:**

1. Once-and-only once message delivery for communication and integration between applications
2. Tasks that are long running, require prioritization, transactionality, flexible routing, etc

## ***Streaming data platform***

A full-scale streaming platform, capable of not only publish-and-subscribe, but also the storage and processing of data within the stream.

### **Key use cases:**

1. Real-time processing of large volumes of messages from multiple producers to a small number of consumers
2. Data Analysis through storing, reading/re-reading and analyzing stream data



# Enterprise Messaging with IBM MQ

Reliable enterprise messaging for mission critical applications

Massive amounts of data move as messages between applications, systems, and services at any given time.

IBM MQ provides:

- **Data transfer across new cloud-based applications and core business systems** leveraging message queues and publish/subscribe models to fit application needs.
- **Once-and-only-once message delivery** to ensure your critical business data can be processed accurately and efficiently.
- **Robust message security** with protection for data at rest, in memory, and in-flight through fine grained authentication and powerful data encryption.
- **Exceptional fault tolerance** with workload balancing, high availability, and disaster recovery capabilities ensures you never lose a message.
- **Performance and scalability** proven to match your needs under any situation



# IBM MQ is *the* solution for mission-critical messaging

The world depends on reliable, secure messaging and **85% of the fortune 100** depend on IBM MQ<sup>1</sup>

- 98 of the top 100 global **banks** using IBM MQ<sup>2</sup>
- 8 of the top 10 global **manufacturers**<sup>3</sup>
- 9 of the top 10 global **healthcare providers**<sup>4</sup>
- 6 of the top 10 global **retailers**<sup>5</sup>
- 9 of the world's top 10 global **airlines**<sup>6</sup>
- 9 of the top 10 global **insurers**<sup>7</sup>
- 9 of the top 10 global **IT services companies**<sup>8</sup>

**1+1=2**

Simple



Precise



Scalable



Connected

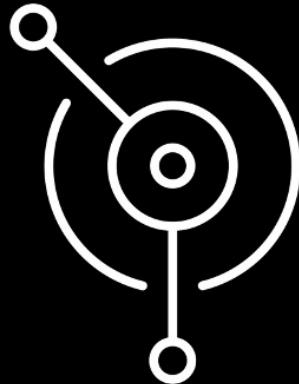


Reliable



Secure

A focus on where  
you need MQ today



On-premise, software  
and the MQ Appliance,  
exactly as you need it



Run MQ yourself in  
public or private  
clouds, virtual  
machines or  
containers



Let IBM host MQ for  
you with its managed  
SaaS MQ service in  
public clouds,  
IBM Cloud and AWS

