BAHRIA UNIVERSITY (KARACHI CAMPUS)

Software Design & Architecture (SEN-457)

QUIZ # 2 – Spring 2021

Based on: CLO-2

Class: **BSE-4B**
Course Instructor: **Engr. Majid Kaleem**
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Date: **19th April 21**
Max Marks: **2.5**
Submission Date: **20th April 21**
Reg. # : **65153**

- All questions should be answered in the same file using black font color.
- Write the answer in your own wordings and avoid copying/pasting.
- Your submitted report might be checked for plagiarism.

Answer the following question:

QUESTION:

During the recent lockdown period caused by COVID19, almost entire world is relying either on ZOOM Meetings or MS Teams to smoothly execute their professional or educational activities and so on. Describe the architectural styles implemented in ZOOM Meetings and MS Teams that have made them so robust and reliable.

You may use diagrams to elaborate and support your answer.

SOLUTION:

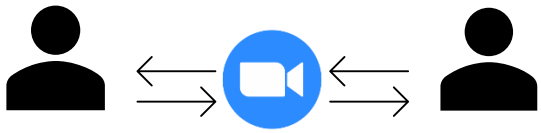
ZOOM

Zoom uses a **cloud-based peer to peer architecture** to combine video conferencing, web meetings, file sharing, remote controlling and group chat into one platform. Cloud-hosted solutions manage collaboration between zoom users and servers to initiate connection to a meeting. For the rest of the meeting, we stream our video to a server that forwards all of that data to the rest of the participants.

Peer-to-peer connections work in a similar manner. Some of them just notify the client about the call being initiated. For the rest of the meeting, users stream their video directly to the other person. There's no server in-between.

The contrast that separates the two methods of communication is simply who the users communicate with. With cloud, they send their video to zoom server for distribution. With peer-to-peer, they send their video to the person they're talking to.

- **Two persons meeting in zoom:**



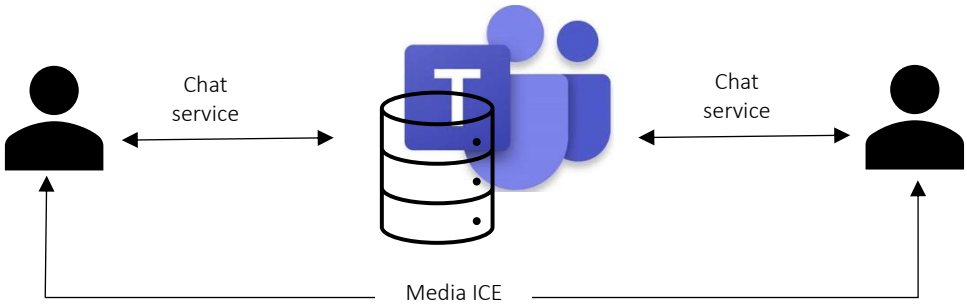
- **Multiple persons meeting in zoom**

MS TEAMS

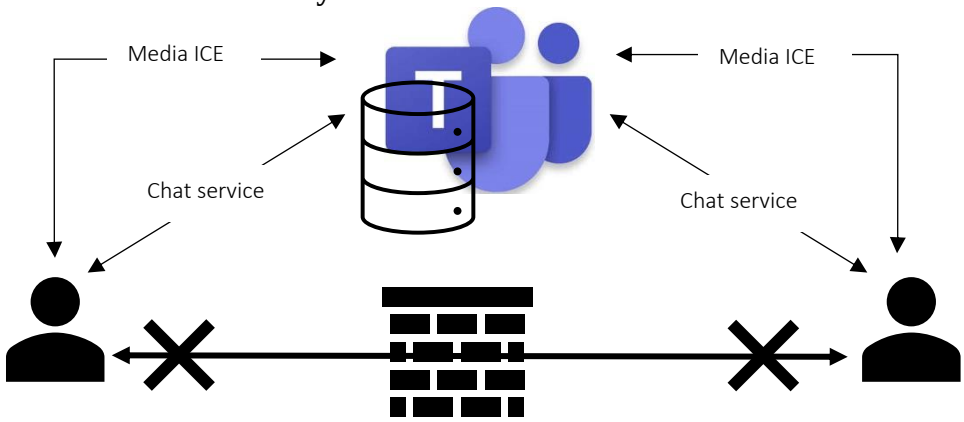
Unlike ZOOM, **MS teams** is based on a logical architecture or microservices architecture, which means that it is not constrained to one architecture design, technology or environment. It uses different techniques and services for different purposes.

This architecture is efficient in bandwidth consumption, provides more robust telemetry, and enables maintenance and upgrades with minimal disruption. When possible, media is established peer-to-peer. This is the best condition where the media stream can flow. In a situation where the link cannot be established peer-to-peer, or when there are more than two participants, the cloud media relay infrastructure is used to connect the users.

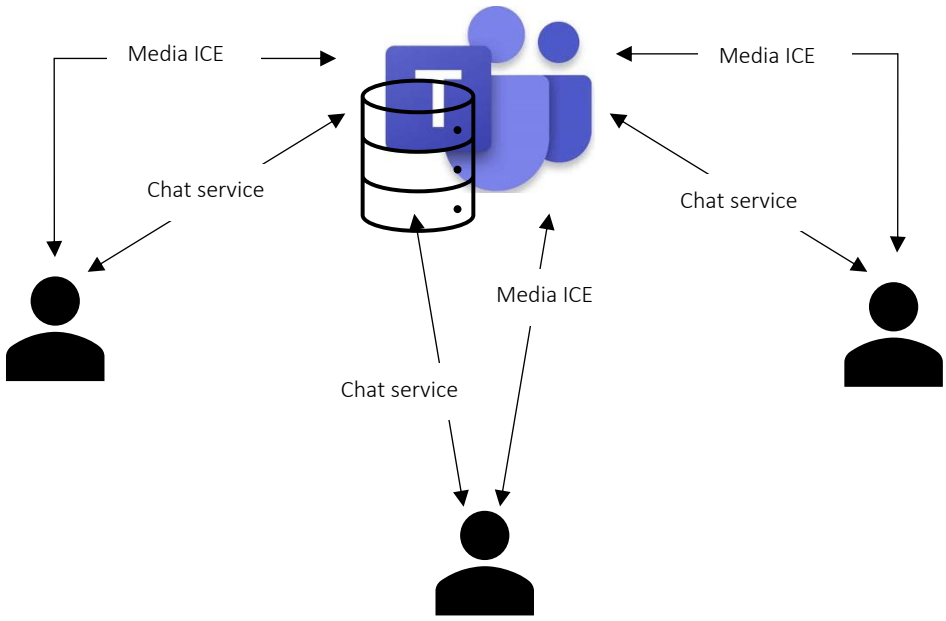
- **P2P with direct connection**



- **P2P with no direct connectivity**



- **Communication between more than 2 participants**



Note: In the above representations **ICE** stands for **Information and Content Exchange**

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