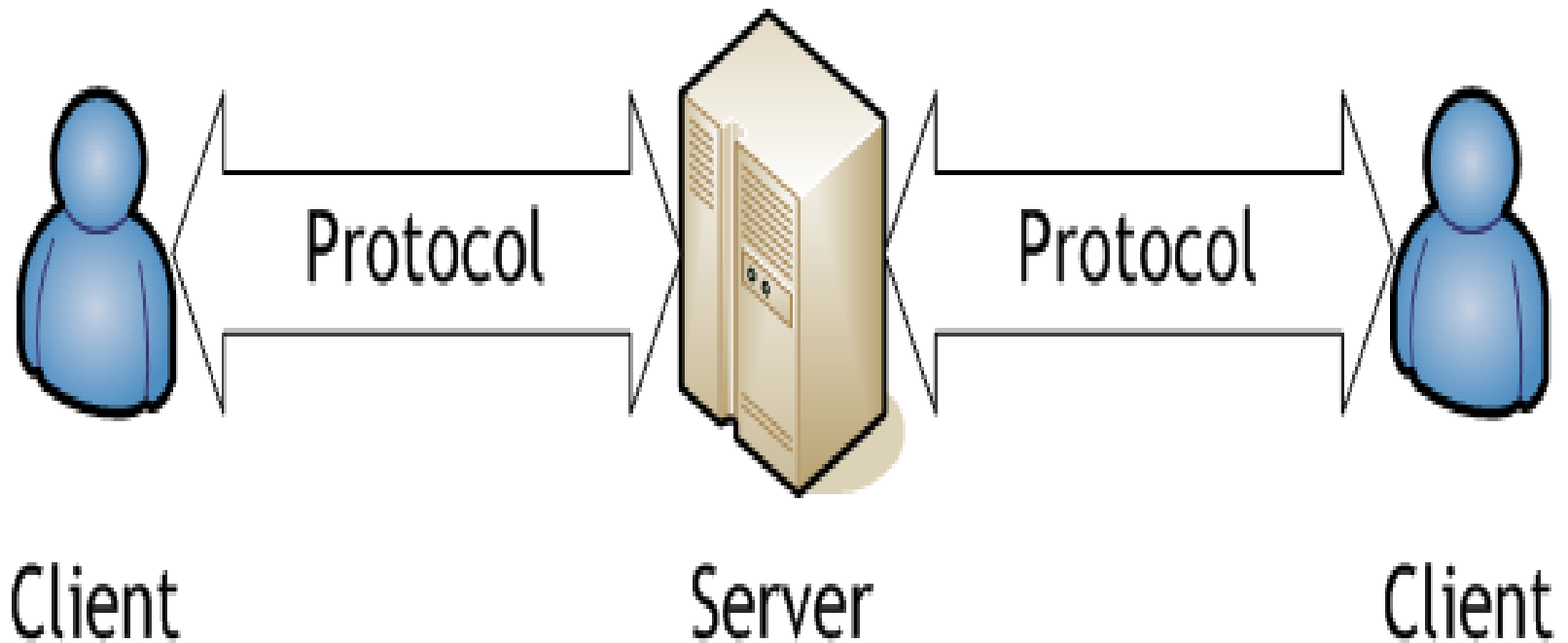# Peer 2 Peer SIP

Durga Prasad Rajamani

Arnold Kemoli
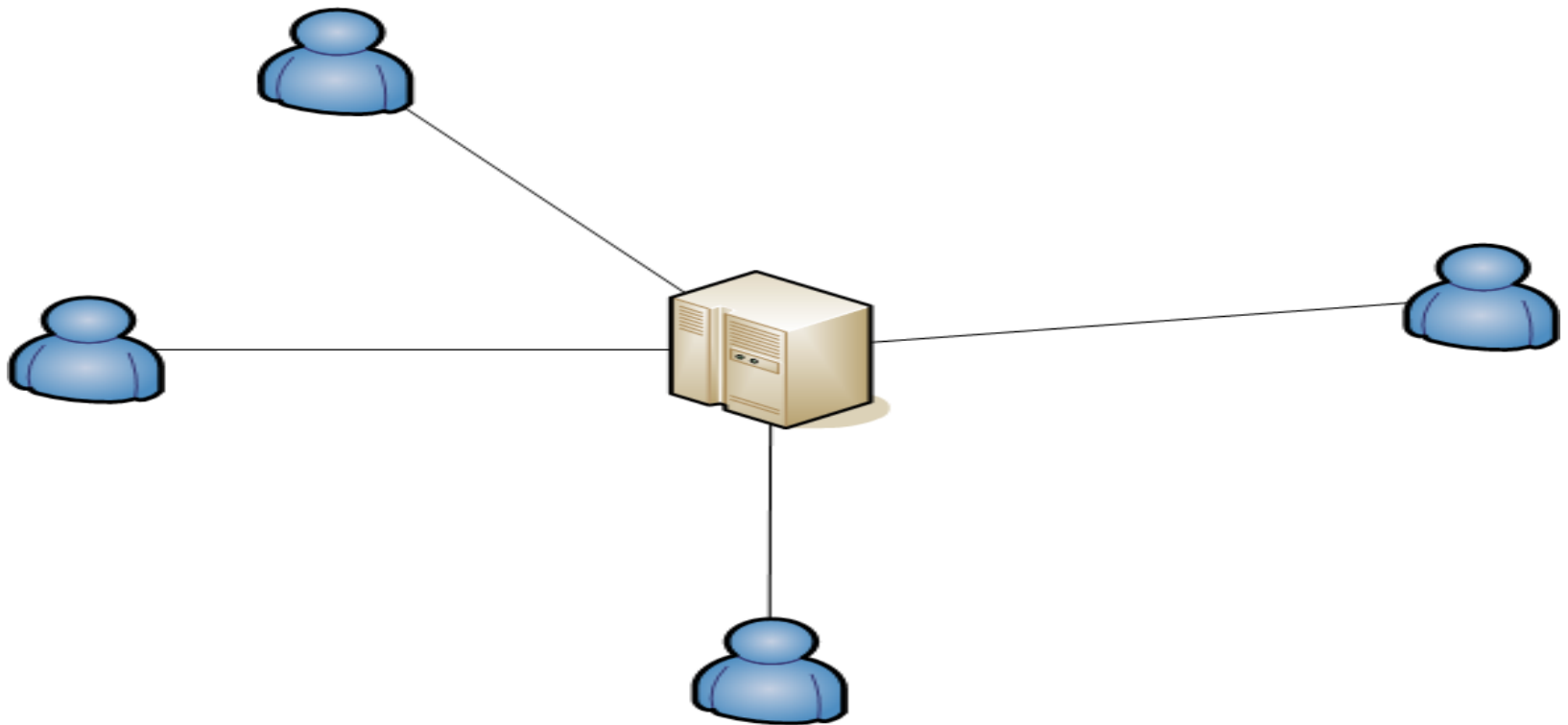
Topics

o Client – Server Model

o Client – Server Model Evaluation

o P2P

o P2PSIP

o Defnitions

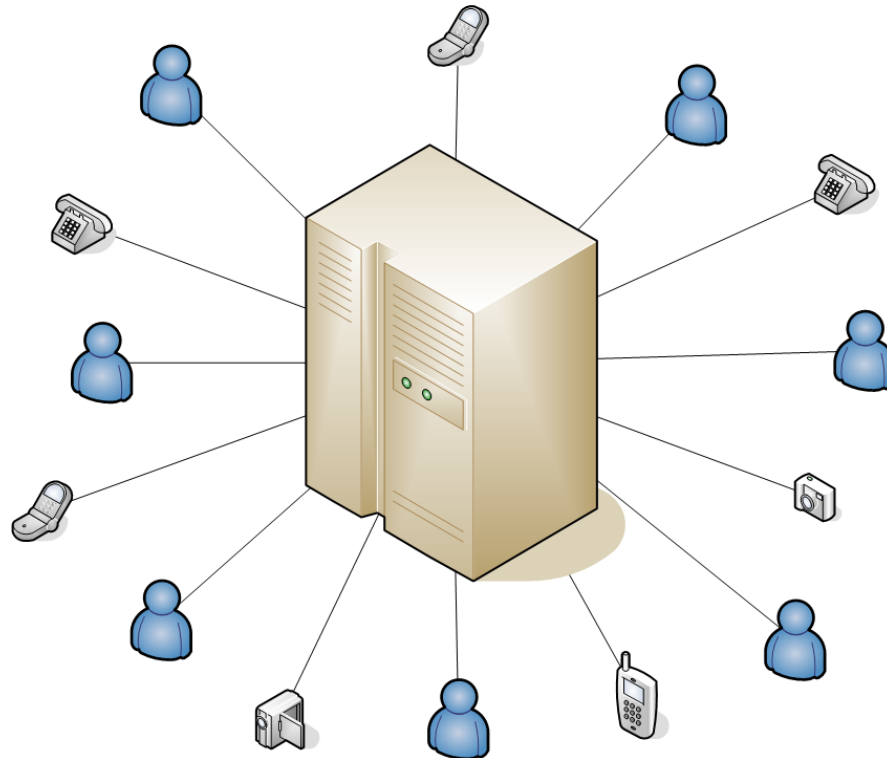# Client-Server model

Client-Server model evaluation

Client-Server model evolution

But more and more people wanted to join in, to be able to access the resources…

Client-Server model evolution

…so they have built even larger servers hosting multiple services and handling all kind of new fancy devices

Client-Server model evolution

And all was well until scalability and availability problems started to raise their heads
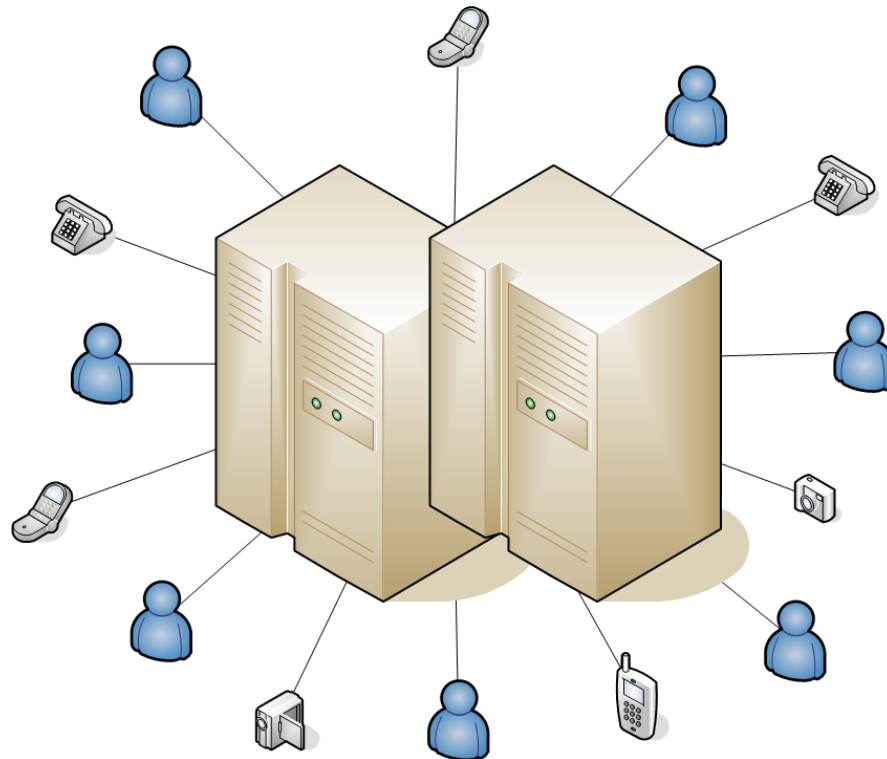
Client-Server model evolution

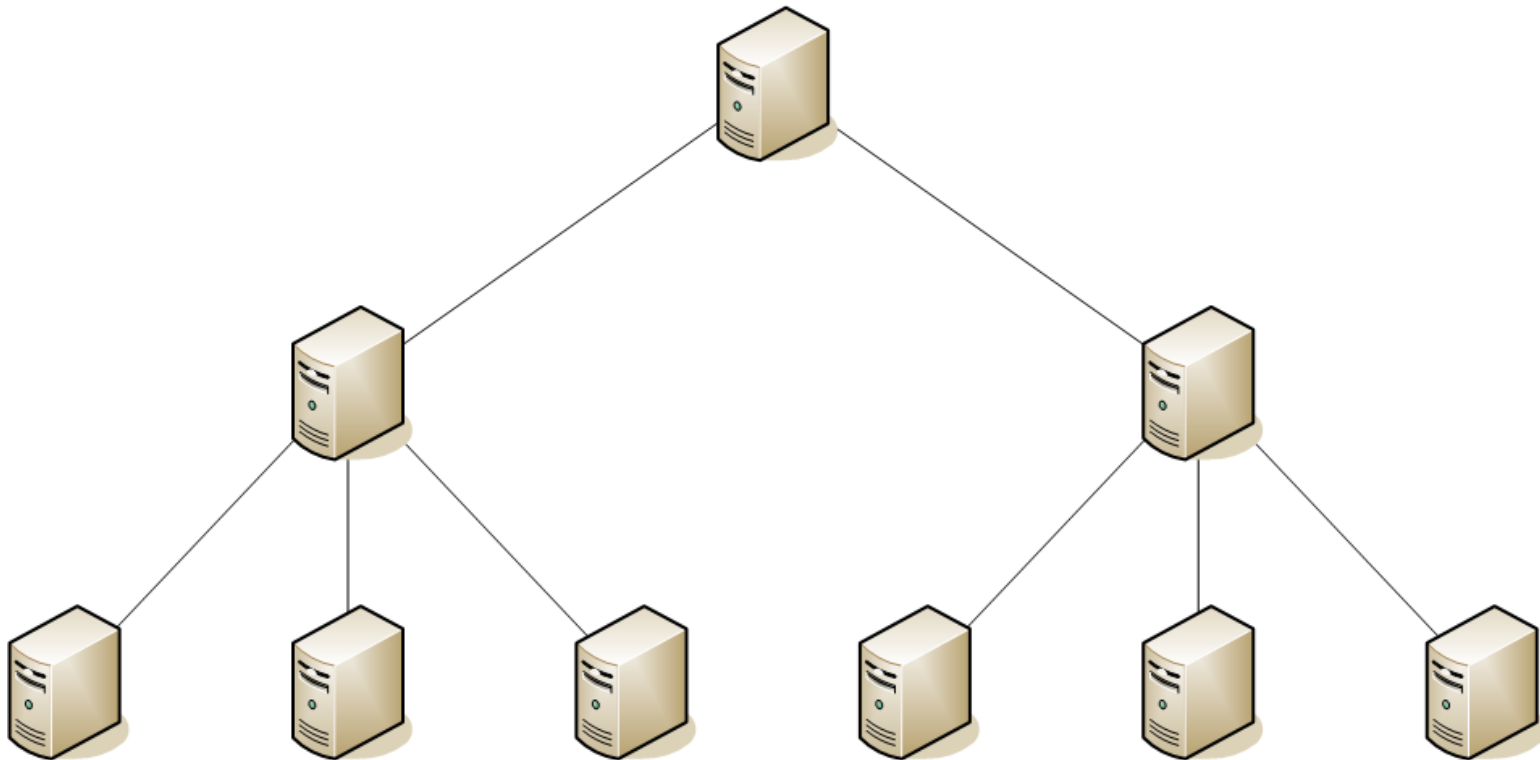But some smart guys thought hard about them and came up with solutions…

Client-Server model evolution

And so the clusters were born to address high availability issues and eliminate single points of failure…

Client-Server model evolution

… and multilevel load balancing schemes were created to address scalability issues

Client-Server model evolution

But at this point the architecture was no longer simple…

The systems became hard to build and maintain. They became costly and required highly skilled individuals to keep them up and running

And more often than not, failures in such complex systems lead to frustration on all levels

Understanding P2P

- P2P networks are those which exhibit 3 characteristics:

  - o self-organization
  - o distributed control / resources
  - o symmetric communication

P2P model evaluation

- Scalable
- Distributed (no single point of failure)
- Intelligence moved to the network border (clients)
- No centralized control
- No server maintenance

- More complex
- Higher latency in routing
- Distributed data storage is hard to do

Overlay definition

An overlay network is a virtual network of nodes and logical links that is built on top of an existing network with the purpose to implement a network service that is not available in the existing network. *I. Stoica*

- A P2P network is an overlay itself (over TCP/IP)
- There can be overlays over a P2P network as well
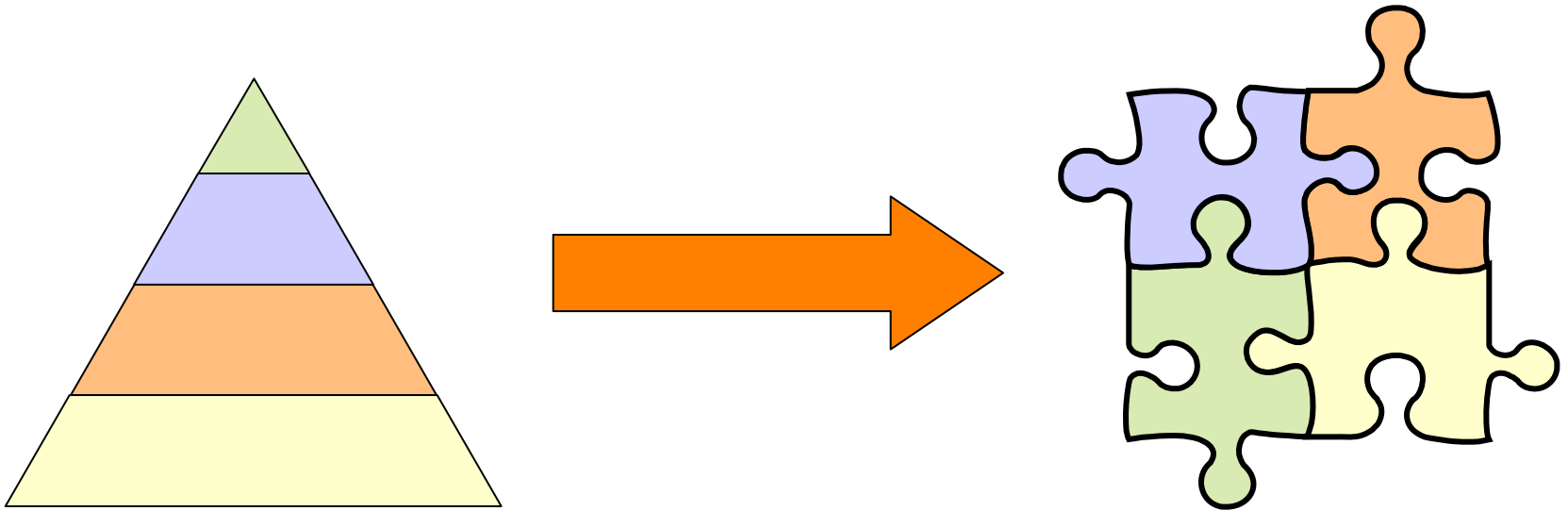
The P2P concept in images

The P2P concept in images

How P2P changes the picture

P2P networks replace centralization and hierarchy with distribution and collaboration. At a philosophical level they replace centralized control with responsibility and freedom.

P2P SIP

o A suite of communications protocols related to SIP that enable SIP to use P2P techniques for providing SIP message transport and other SIP-related functions.

Definitions

o **User**: Human that interacts with the overlay

o **Overlay Name**: Human friendly name that identifies a specifc P2PSIP overlay.

o **Peer ID**: Information that uniquely identifies each peer within a given overlay

o **User Name**: Human-friendly name for a user

o **Services**: Peers offer storage and transport services for implementing distributed database

o **Resource**: Anything about which information can be stored in the overlay, f.e users and services

Definitions

o **Resource ID**: A non-human-friendly value that uniquely identifies the Resource

o **Responsible Peer**: The peer that is responsible for storing the Resource Record for a Resource

o **Neighbors**: The set of peers that either a Peer or a Client know of directly

o **Joining Peer**: A node that is attempting to become a peer in a particular overlay

o **Bootstrap Peer**: A Peer in the overlay that is the first contact for a joining peer

o **Admitting Peer**: A Peer in the overlay which helps the joining peer to join the overlay

Thanks ....

Rest will be continued

by

Mr. Kemoli