

# Understanding VoIP: Tom & Jerry Meets Technology

Original paper by—Author; Gideon Areo  
Explained with the analogies by Vishal Dhawal- to make the concepts  
beginner-friendly and engaging.

Original Paper link- [https://www.researchgate.net/profile/Gideon-Areo/publication/388653416\\_Transforming\\_Communication\\_A\\_Critical\\_Review\\_of\\_VoIP\\_and\\_Its\\_Role\\_in\\_Global\\_Networking](https://www.researchgate.net/profile/Gideon-Areo/publication/388653416_Transforming_Communication_A_Critical_Review_of_VoIP_and_Its_Role_in_Global_Networking)

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Technology rarely feels fun — unless Tom and Jerry explain it.  
So imagine your voice is **Jerry**, the old telephone system is **Tom**, and the  
Internet is the **entire house** they run in.  
With that picture, VoIP becomes surprisingly easy.

## 1. When Communication Was Simple... and Slow (Tom's Glory Days)

In the old telephone era, life was simple — for Tom.  
Jerry had only **one small tunnel** from the kitchen to the living room.  
Every message he sent had to pass through that tunnel.

*One path*

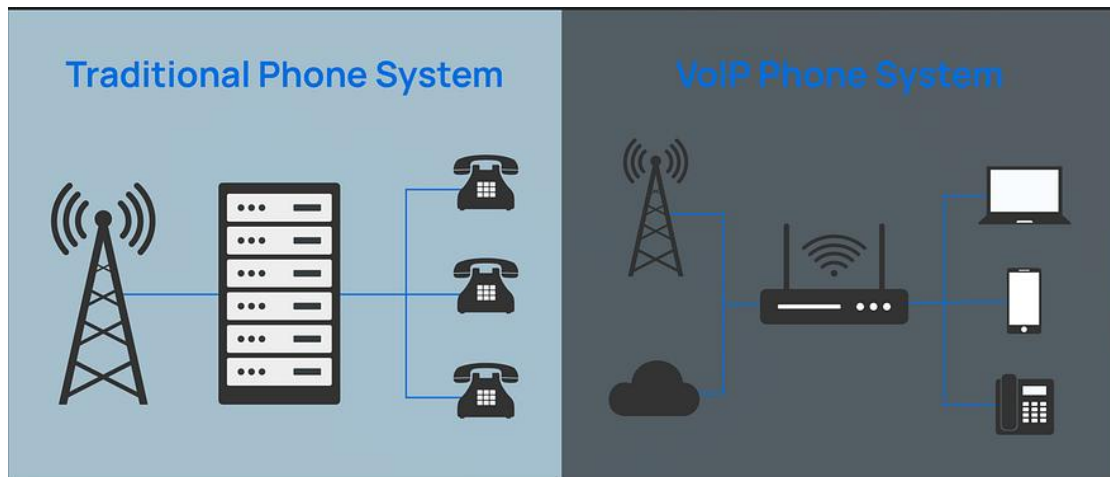
*One route*

*One chance*

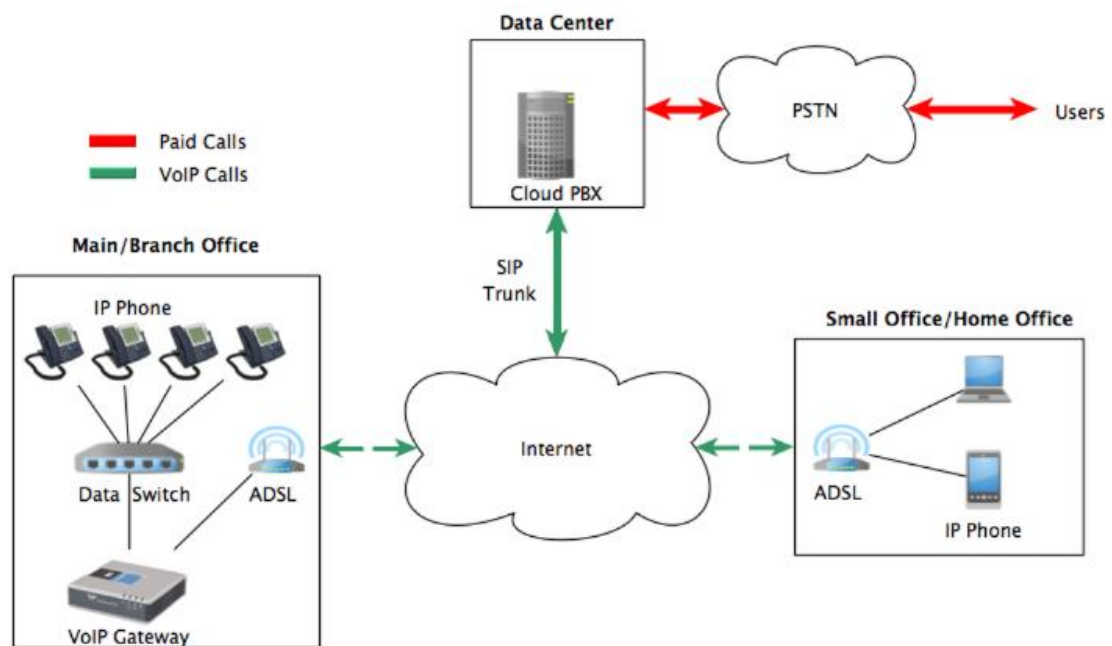
Tom just sat at the entrance like a king.  
If Jerry wanted to send an important message (your voice), Tom charged him,  
slowed him, or blocked him entirely.

That's traditional telephony:

**Rigid, controlled, expensive, single-path communication.**



Tradition and VoIP Phone System



Architecture of VoIP

## 2. Then Came the Internet: New Holes, New Routes, New Chaos

Suddenly, cracks appeared in the walls.

*Pipes opened.*

*Air vents widened.*

*Floor gaps appeared everywhere.*

Jerry's eyes lit up.

**“Why use that one boring tunnel when I can use *any* path in this whole house?”**

This is exactly what VoIP does.

It lets your voice travel through **any available Internet route**, not a fixed line.

Tom is confused.

Jerry is thrilled.

***Communication becomes free, fast, and everywhere.***

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## 3. Jerry Gets Smarter: The Birth of Voice Packets

Earlier, Jerry ran whole — one message, one mouse. But to move faster and avoid Tom, Jerry comes up with genius:

He splits into **dozens of tiny Jerry clones**.

Each mini-Jerry takes a different route — some under the couch, some through the chimney, some over Tom's sleeping face.

This = VoIP packets.

*Your voice is chopped into tiny data packets.  
Each packet takes whichever path is free.  
All packets reunite at the destination and form your voice again.*

Tom can't catch them all. Jerry becomes unstoppable.

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#### **4. But Tom Evolves Too: Traps Everywhere (VoIP Security Problems)**

Tom isn't losing this easily.

He sets:

*Mousetraps → **Eavesdropping**  
Fake cheese → **Phishing / Spoofing**  
Wooden blocks at door → **DoS attacks**  
Entire army of robot cats → **Botnets***

***Your voice packets (mini-Jerrys) are now moving in a hostile environment.***

***VoIP security issues start here.***

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## 5. Jerry Responds: The Tech Upgrades

To survive, Jerry upgrades himself like Iron Man.

### a) SRTP = Full body armor

Mini-Jerrys are now encrypted.

Tom grabs one → can't read anything.

### b) TLS = Invisible entry pass

Tom's security doors don't detect Jerry at all.

### c) Firewalls = Laser-detecting goggles

Jerry sees traps before stepping in them.

### d) Authentication = Secret handshake

Only the real Jerry gets allowed into safe tunnels.

Now *communication is fast and safe*.

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## 6. Internet Quality = The State of the House

When the house is messy:

*Furniture blocking routes → Latency*

*Uneven floors → Jitter*

*Broken passages → Packet loss*

Mini-Jerrys trip, fall, delay, or disappear.

But with good internet (clean house):

*Jerry races*  
*Packets arrive in sync*  
*No one gets stuck*

***Smooth, clear, HD calls.***

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## **7. The Future: Tom & Jerry Go Sci-Fi**

**5G → Jerry gets jet boots**

He zooms across the house before Tom even looks up.

**AI → Jerry can predict traps**

If Tom is *thinking* of ambushing, Jerry already knows.

**Blockchain → Unforgeable identity**

No cat can pretend to be Jerry now.

**WebRTC → Direct room-to-room teleporting**

No tunnels needed.

No middlemen.

Instant arrival.

Jerry becomes a *communication superhero*.

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## Conclusion: The Chase Has Changed Forever

The old world was simple —  
Jerry ran through one tunnel and Tom controlled it.

Today, Jerry runs through **hundreds of tunnels**, splits into tiny clones, wears armor, reads the future, and even teleports between rooms.

**That's VoIP.**

A messy, clever, fast, evolving chase —  
where communication escapes old limitations and becomes **smarter,**  
**quicker, and almost impossible to stop.**

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