

Principles and effects of the  
Internet: a new framework.  
Application to ICANN

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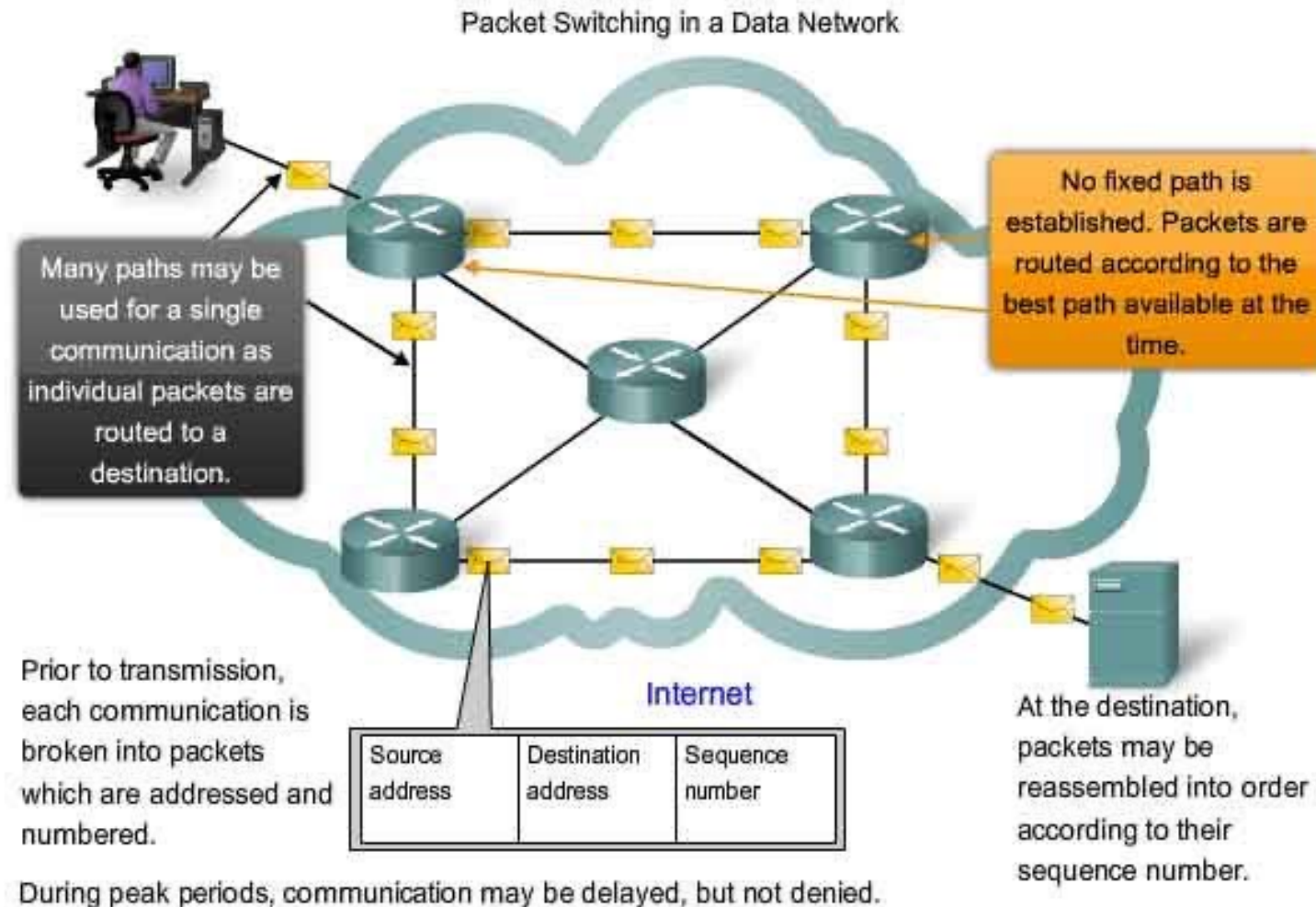
# Some recent and recurrent questions and discussions, buzz, hype, and headlines

- “never will the e-book substitute the smell and soft texture of the printed page!” vs “I need it in digital **NOW** to start reading it right where I am!”
- “Teach, do you have the PDF?”
- “The Internet is making us all stupid and lazy; nobody reads anymore”
- “Sexting, grooming, phishing, and identity theft are the main risk facing children”
- “Four reasons why the Internet is the worst thing that has happened to humankind”

# Internet design principles and goals

- Layered architecture
- Packet switching
- Fallibility and “best effort”
- Interoperability
- Openness
- “end to end” or “dumb network, smart edge”
- Decentralization
- Scalability
- Universality
- Permissionless innovation

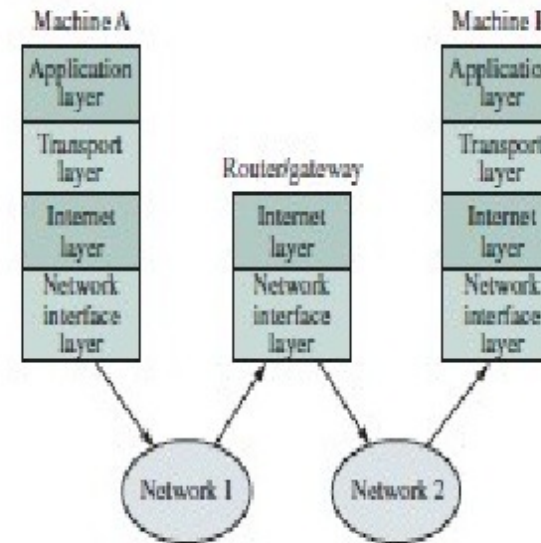
# Packet switching



# Layered architecture

## TCP/IP Reference Model

- Also called the Internet Architecture
- No Strict enforcement of layering
- Usually shown as a 4 or 5 layer model



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# 6F – a framework for Internet effects

- Purpose: mapping online and offline conduct
- Method: “remove the Internet” from each online issue
  1. Mass scaling (includes network effects)
  2. Identity and anonymity
  3. Transjurisdictional effects
  4. Barrier lowering
  5. Friction reduction
  6. Memory and forgetting

# A “nice” example: Wikipedia and sharing

The underlying conduct is collaboration to write and update an encyclopaedia

1. Mass scaling: Wikipedia is read by hundreds of millions... and authored by millions!
2. Identity and anonymity: initially anonymous contribution was favored. Infighting, trolling etc. brought in identification
3. Transjurisdictional: Wikipedia is written across all borders
4. Barrier lowering: compare to Encyclopaedia Britannica. Enough said?
5. Friction reduction: instant, effortless editing, and posting (and flame wars)
6. Memory and forgetting: Wikipedia adds massively to memory of the world. Editing may “forget” selectively, rewriting history. Integrity tests keep it mostly clean

# A “naughty” example: phishing

The underlying conduct is fraud aided by supplantation

1. Mass scaling: a crime goes from 50/perpetrator-day to zillions/minute
2. Identity/anonymity: the key to the crime is fraudulently obtaining identity keys; the perpetrator hides behind anonymity , obfuscation, and difficult attribution
3. Transjurisdictional: criminals jump several borders, hide outside the reach of the law
4. Barrier lowering: anyone can set up phishing, build up a gang, thrive in the criminal ecosystem
5. Friction reduction: instant clicking by victim is key to effectiveness
6. Memory and forgetting: archival information facilitates phishing; traces erased; slips and mistakes remain forever, allow fighting and catching perpetrators



# 6F and books

1. Mass scaling: simultaneous, global access and publishing; multiplication of readers and authors
2. Identity: obfuscation or anonymity for unauthorized use; value of anonymity for publishing under authoritarian regimes
3. Transjurisdictional: access to books forbidden in territory for legal, political, or commercial reasons
4. Barrier lowering: new publishing entities and models
5. Friction lowering: instant access and sales, collaborative work
6. Memory and forgetting: permanent archives; risk of “Digital Dark Ages”

# 6F and libraries

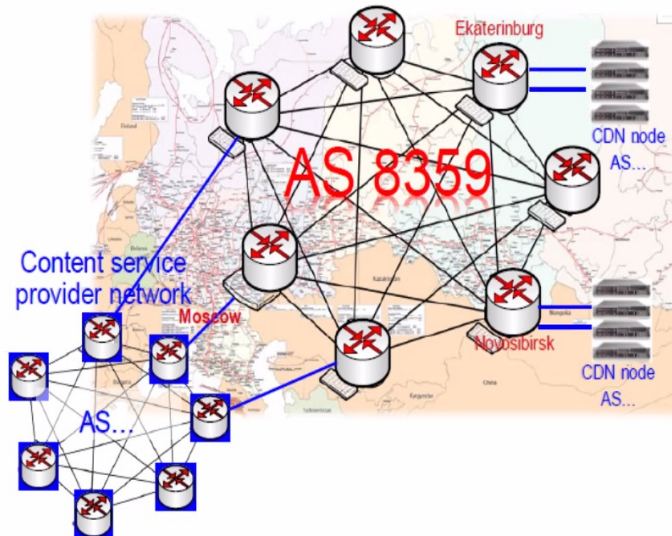
1. Mass scaling: new reading publics, new publishing, sale, rent, and subscription models
2. Identity and anonymity: access for at-risk populations; collision with subscription models
3. Transjurisdictional: libraries and readers subject to extraterritorial laws
4. Barrier lowering: new publishers, collaborative collections
5. Friction reduction: readers expect instant access and response
6. Memory and forgetting: immense new assets (archives); “Digital Dark Ages”; RTBF; rewriting history



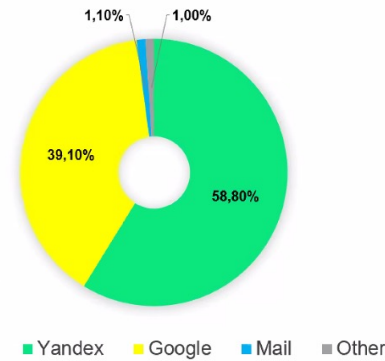
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### On the possibility of improvement

Typical connection to content providers



Market share of search engines in Russia



[https://www.kommersant.ru/doc/4547165?from=main\\_8](https://www.kommersant.ru/doc/4547165?from=main_8)

What's done is better than perfect, but sometimes you need to do better.

#### Zoom Webinar Chat

makes perfect sense to my mind

From Olivier Crepin-Labond to All panelists and attendees: +1 Marianne. Great points!

From Minda Moreira to All panelists: Very good, Marianne, thank you!

From Lucien M. CASTEX to All panelists: Indeed, quite an interesting point.

From Vint Cerf to All panelists: Hi Marianne Good points!

From Marianne Franklin to All panelists: We have visuals! I prefer though for Lady Penelope to remain my avatar :D

From Olivier Crepin-Labond to All panelists: Yes Marianne -- as you are representing IRPC and probably have comments afterwards.

From Me to All panelists: Marianne, Deirdre, thanks for your insights. We would be NOWHERE without you

From Marianne Franklin to All panelists: Sure Olivier, Minda Moreira, co-Chair of IRPC has just joined us so happy to defer to her expertise on this point.

From Mwando vIGF 2020 to All panelists and attendees: ----- Please use the Q&A section for any question and if you want to speak, there will be time for that and the raise hand option will be allowed. ----- Remember to use the chat section for comments and the Q&A for any question. We would like to here from you. -----

From Olivier Crepin-Labond to All panelists: ok Marianne, thanks. If she wants to speak she can be upgraded to panelist

From Me to All panelists: Olga, really interesting point of view. Question: are the percentages month-to-month or to the same month in a previous year? Does the Summer have the same effect this year as previous ones? Seasonal adjustment, in other words.

From Vint Cerf to All panelists: Mine is a super character - see brief video cancellation

From vIGF 2020 to All panelists: Please use the Q&A section for any question and if you want to speak, there will be time for that and the raise hand option will be allowed.

From Deirdre Williams to All panelists and attendees: perhaps the change needs to be from individual freedom to individual responsibility?

To: All panelists Type message here...

Zoom Webinar

Alejandro Pisanty | Olga Makarova | Sébastien Bachollet | Vint Cerf | Olivier Crepin-L... | Mwando vIGF 2020

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### On quality of service

**Over 70% of the problems associated with a long page load time were related to the sites themselves, and not to the network.**

■ Page load time does not exceed the specified  
■ Page load time exceeds specified

**Before the pandemic started**

■ Page load time does not exceed the specified  
■ Page load time exceeds specified

**Nowadays**

**The devil is in the details, and every day there are more and more of them.**

5

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Type message here...

Windows taskbar: Type here to search, 5:17 AM, 11/4/2020

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88%

12%

- Page load time does not exceed the specified
- Page load time exceeds specified

Before the pandemic started

91%

9%

- Page load time does not exceed the specified
- Page load time exceeds specified

Nowadays

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# 6F and ICANN – focus on DNS

Scalability – DNS hierarchical system, delegation principle

- potential Achilles Heel: the root. Solved via replication and anycast. SSR is critical for DNS function in scaling (includes robustness, resilience)

Identity – challenges: whois, spoofing, DNS abuse, name hijacking, “cybersquatting”, personal data protection, protecting anonymity

Transjurisdictional – evolving from national jurisdiction in the US through private-law and contracts regime + GAC, to present “empowered community”

Barrier lowering – easier access to registration and associated businesses

Friction reduction – easier, faster access to domain-name business; need LESS friction in ccTLD re-delegation, new gTLDs

Memory and oblivion – IANA registry, high availability; importance of blocking and filtering as denial of access to memory