



# Next-Generation Domain Names

Gihan Dias

*LK Domain Registry*

# The Domain Name System

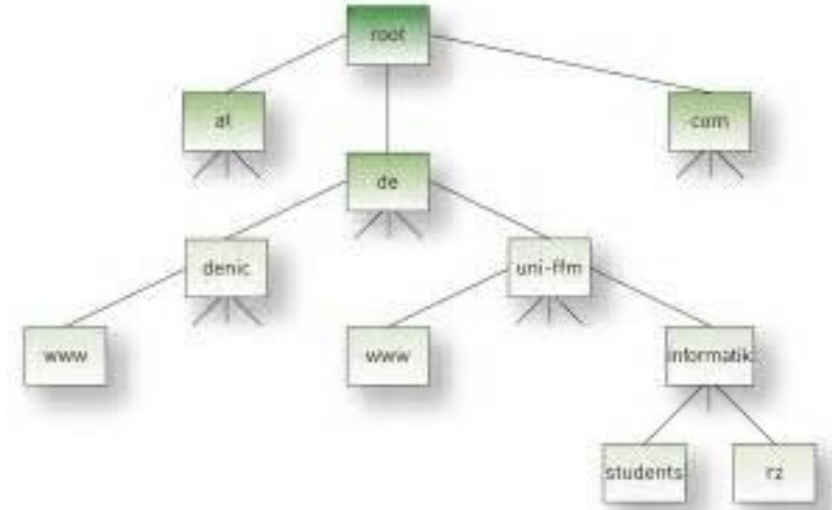
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- From 1985, the DNS has registered domain names.
  - e.g., `www.daraz.lk`
- Other than the introduction of IDNs, not much has changed since then.



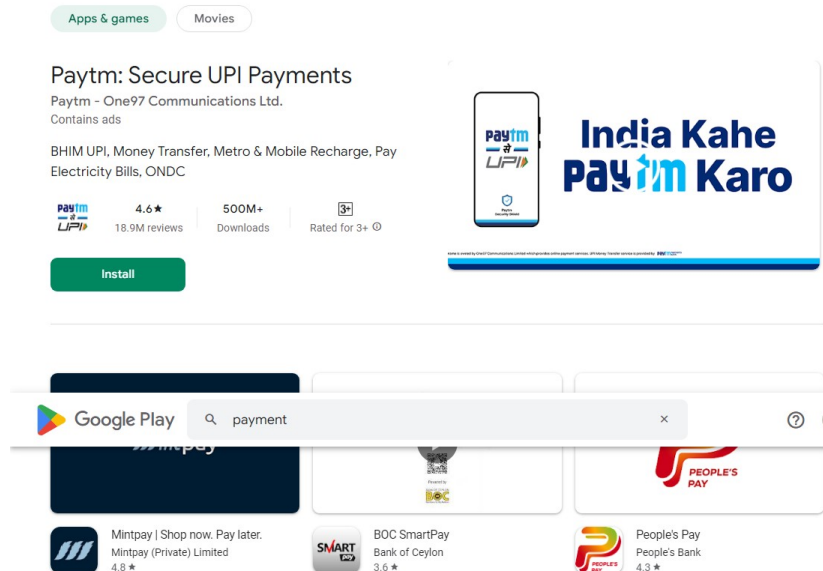
# Features of Current Domain Names

- Text
  - e.g., facebook.com
  - No pictures, etc.
- Unique
  - A name has only **one registrant** (owner) and refers to **one system**
- Hierarchical
  - Consists of a set of labels (from right to left)
  - e.g., [www.cse.mrt.ac.lk](http://www.cse.mrt.ac.lk)
  - Each label is used in the context of the labels on the right (domain)



# Alternatives to Domain Names

- Company and Personal Names
  - Long and often not unique
- Apps
  - Ecosystems which hide domain names



- Appstores
  - Use their own naming system
- UserIDs and handles
  - FaceBook, etc.
- Phone Nos
  - e.g. WhatsApp



Does anyone use Domain Names?

# How People Get Information

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- Click on Links
- Google
- ChatGPT, CoPilot
  - Today, many people use **AI tools** to find information
  - Tomorrow, *everyone* will do so
  - What is the role of DNS in this world?

# How Software Gets Information

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- Hard-coded URLs
- Dynamically constructed URLs
  - Created on-the-fly from various sources
- By looking up search engines and AI tools
- Almost all of these use DNS in the back-end

# What Could Replace Domain Names?

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Some other identifiers which could be used in DNS are:

- labels
- tuples
- long text
- Images
- ...

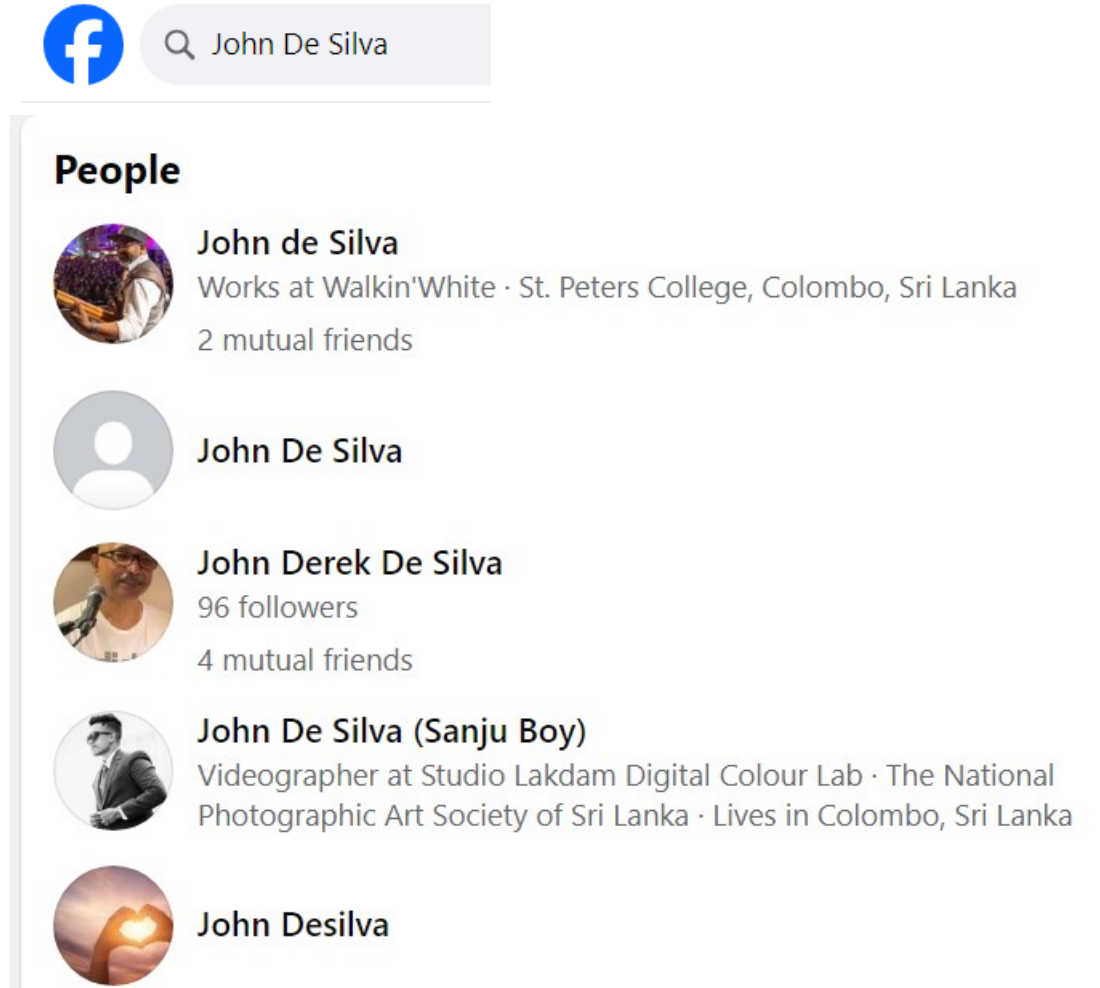




# Labels

# Labels - Non-Unique Identifiers

- the same label may be registered by several people
  - e.g., Vijitha Stores
- Need not be exactly the same
- May be within a certain *domain*
  - e.g., a given area
  - type of business
- Need disambiguation





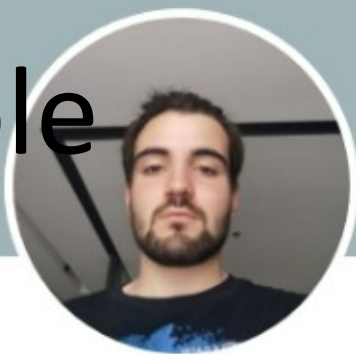
# Tuples

# Tuples

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- A set of name – value pairs
  - e.g., Name = Gihan Dias
- Each entity would register a number of tuples
  - colour=grey, city=Colombo, country=LK
- Tuples may be verified or certified
  - Date-of-birth=2015-01-15; certified by Registrar of Births
- Or only *claimed* by the registrant

# Example



**Leonid Todorov** · 3rd

Golang Developer

Russia · [Contact info](#)

309 connections

[Message](#)

[+ Follow](#)

[More](#)

## About

Hello and welcome to my page!

Since 2021 I work in IT. I am engaged in project development and

## Activity

308 followers

**Leonid hasn't posted yet**

Recent posts Leonid shares will be displayed here.

## Experience



**Golang developer**

Wildberries · Full-time

Oct 2023 - Present · 5 mos

Remote



**Golang Developer**

Social Media Holding · Full-time

Aug 2021 - Oct 2023 · 2 yrs 3 mos

Москва, Россия

•Developed a large number of automations for the con from various sources by api. The automations took the

## Education



**Moscow State U**

Диплом специал

цепочками поста

2018

## Skills

Unix

Git

## Tuples:

Name=Leonid Todorov

Position=Golang Developer

Location=Russia

About=Hello and welcome ...

Experience=Golang developer, Wildberries, 2023/10-present

Experience=Golang developer, Social Media Holding, ...

...



Long Text

# Long Text

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- Domain names are generally short
- May contain only letters, numbers and “-” (except IDN)
- Can we have longer text strings in names?
  - including spaces and symbols
- How about very long names
  - Hundreds or thousands of characters
  - Could we store a book in the DNS?
- How do we look-up long names
  - May need *similarity* instead of *exact* matching



Images



# Images

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- Images are used to identify organisations and people
  - Logos
  - Faces
  - Products
- Why would people register images in the DNS
- Why and How would people look up images?
- Looking up an image may not be an exact search
  - How similar should images be to match?

# Vision and Implementation

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- Can we envision - and more importantly -
  - Design and
  - Implement,
- such an identifier system?

# Call to APTLD

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- Set up a Task Force to study and Recommend DNS 2.0
  - We successfully introduced IDNs
  - We *can* implement the next generation of DNS
  - Can we save the DNS – and Domain Registries – from becoming obsolete?



Thank You

Gihan Dias

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