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Home Network Registry Idea

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cira

Today's Home Network & IoT implementation are disparate, kind of scary & need structure!

The home network of the future should be safe & secure and simple to use!

The home network should be reachable from the internet seamlessly and securely

Maybe even your car should be connected to your home network

because your home is bigger than your house

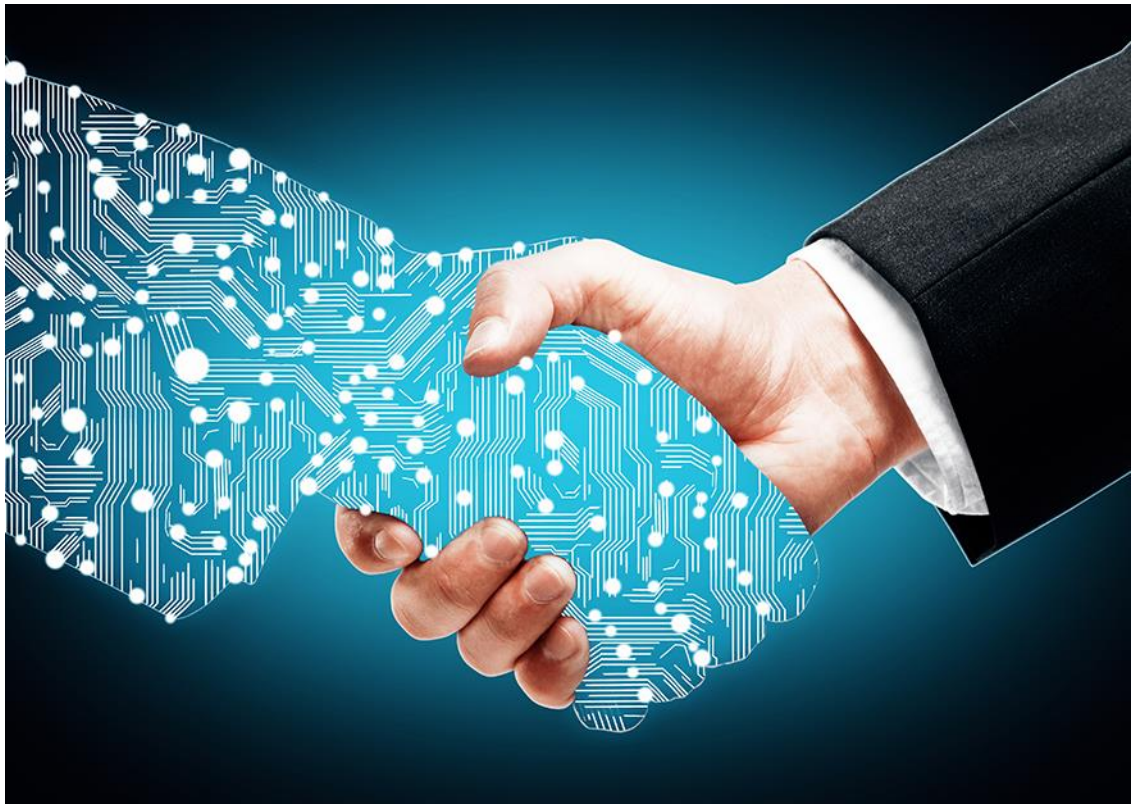
And the home network grows to include personal and wearable IoT, inside and outside the home…

Your home network internal & external traffic should be secure using a common key

Seriously, what is this bringing to the domain industry?

A domain name per household!!!

Leveraging the chain of trust in DNSSEC and some Innovation to create a secure home network platform



Your local ccTLD will provision your domain, sign it with DNSSEC and establish a secure chain of trust to your local home gateway, and magically solve all your worries and keeping your online family safe ☺

home.arpa. draft-ietf-homenet-dot-14

<<The naming mechanism needs to function without configuration from the user. While it may be possible for a name to be delegated by an ISP, homenets must also function in the absence of such a delegation.>>

- Let's make delegated "home" domains function without user configuration!

The focus is on Automation

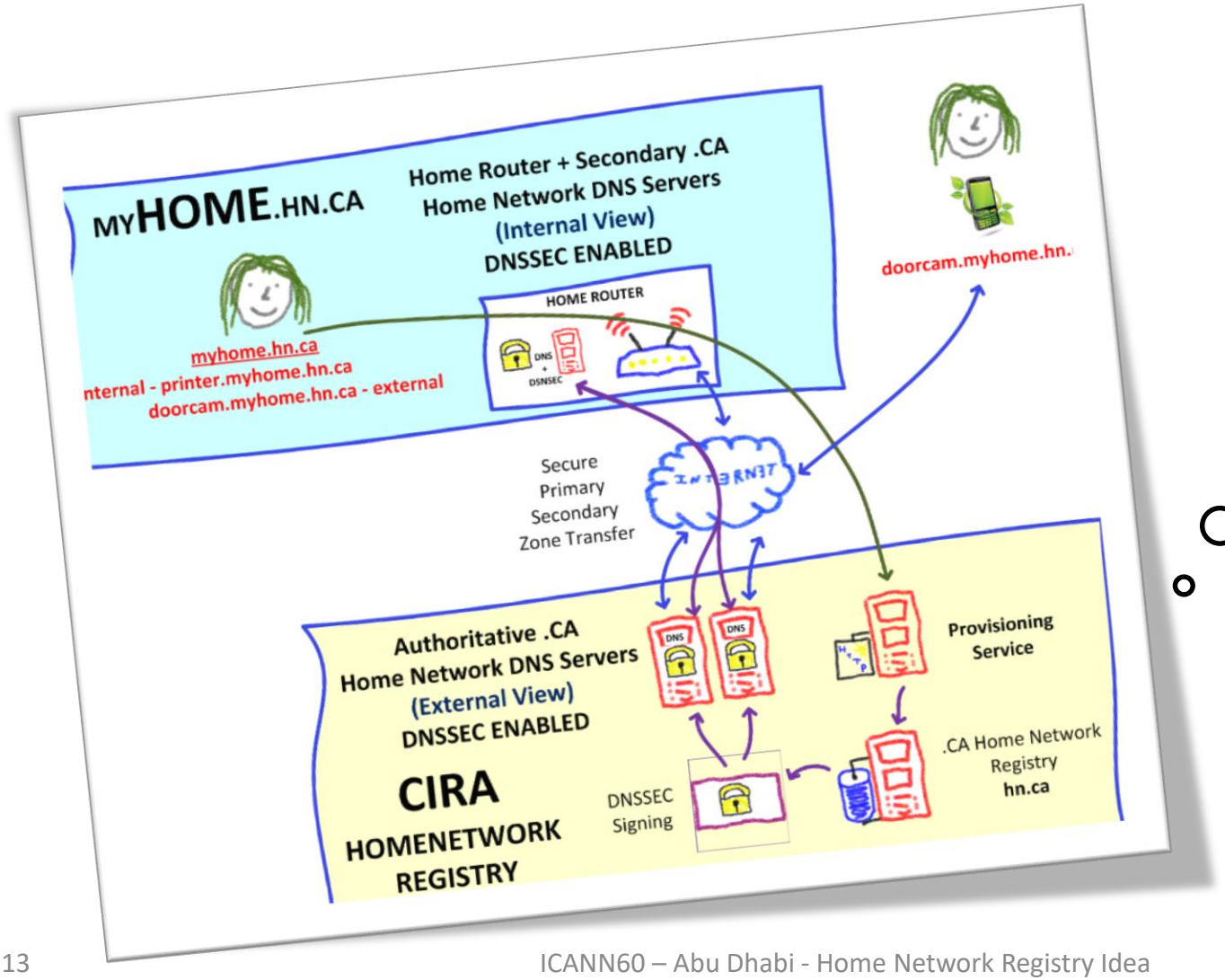
Registry Automation

+

Home Network Automation

glue and some challenges

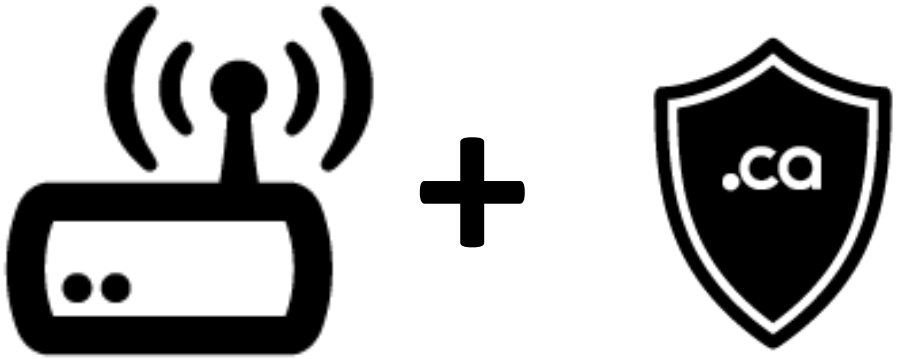
Remember, it's an idea.
So far it looks like this…



That's Supposed to be a napkin design ☺

Step 1

- When you buy a home gateway, it comes bundled with a .CA home network domain



RFID card

Step 2

- Then you follow the provisioning instructions
  - Install & open the CIRA home gateway app
  - Turn home gateway on
  - “TAP” your mobile to discover the home gateway 
  - Pick a domain name
  - Enter the secret code (“TAP” RFID card)

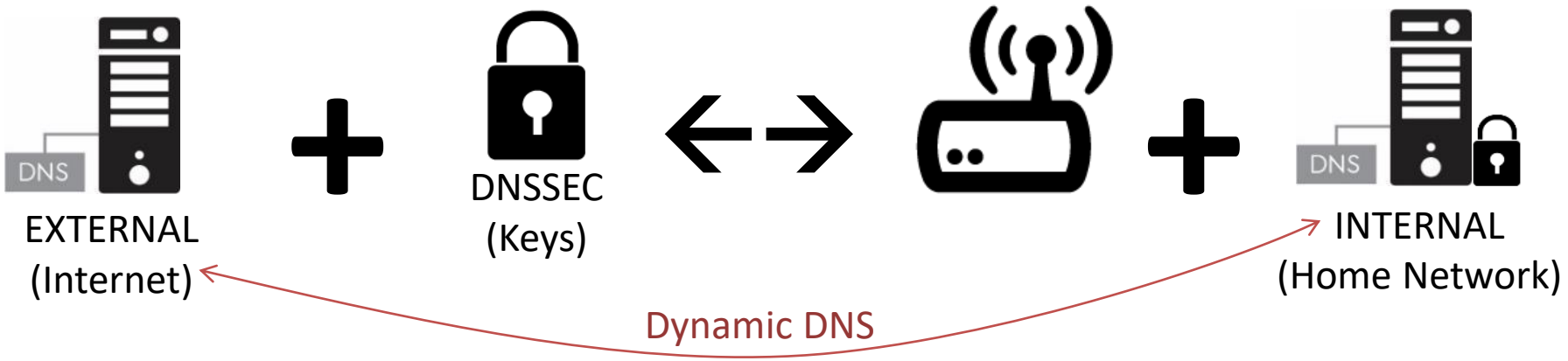
la-house-a-latour.ca +  **code**

Step 3

- Automated System Provisioning @ CIRA
  - CIRA creates the .CA domain name in the registry.
  - CIRA signs the .CA domain with DNSSEC
  - CIRA is primary for the external DNS view of the .CA domain
  - CIRA provides secondary DNS to the .CA domain

Step 4

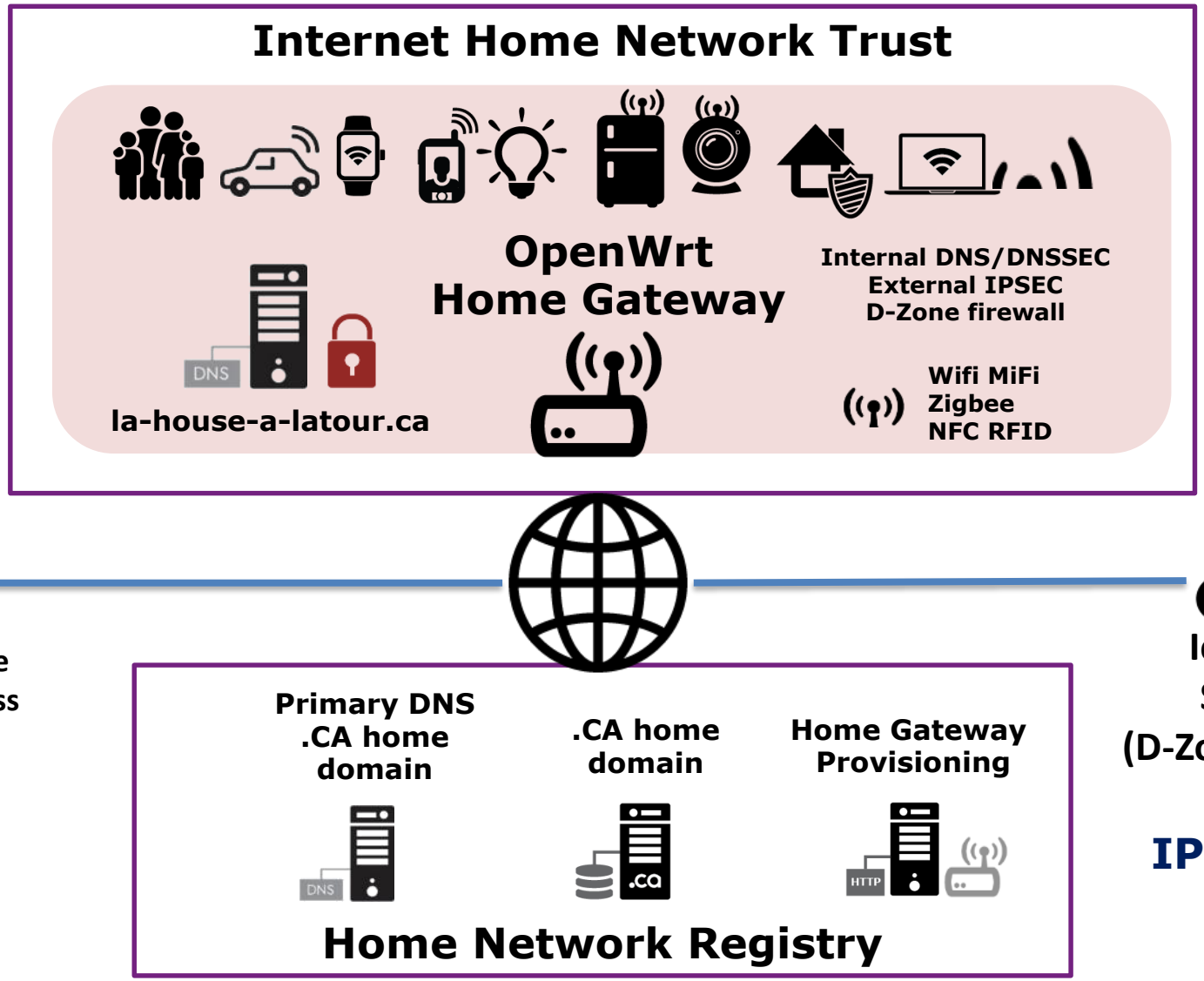
- Automated Home Gateway provisioning
  - Securely send private DNSSEC key to home gateway, setup internal DNS and DNSSEC
  - Configure home gateway for DNS integration with registry (à la dynamic DNS) for external services



Step 5

- Setup secure home network infrastructure
  - Using your trusted mobile & the app, “TAP” the home gateway to;
    - Learn the WIFI password
    - Get the IPSec password to VPN in your home network
  - Use your mobile and “TAP” all your IoT devices to add on your home WIFI network

High Level Architecture



What do you think?

Want to help?

Going forward, it's a journey!

- Motivation
  - Ensure long term ccTLD relevance in the future of IoT
- Proposing ccTLD to develop a solution
  - To keep the home network safe and secure
  - To create a secure **<internet home>** IoT environment
  - To leverage DNSSEC as an innovation platform to create a sort of hub for "home trust"
  - To make the home network remotely accessible
  - That leverages the ccTLD registry expertise

Next Steps

- Develop a Proof of Concept and prototype using .CZ Omnia
- Use public GitHub with functional specification and prototype software
- Research IETF Homenet DNS related drafts
- Opportunity:
  - Put .CA domains in the forefront as a trusted homenet domain name for personal _HOME_ usage when end to end security is required
  - Sell CIRA Home Gateways

The new <Internet Home>

https://github.com/CIRALabs/Home-Network-Registry-Gateway