

ICANN|78 HAMBURG



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Interests :

- ★ **CyberSecurity**
- ★ **Internet Governance**
- ★ **Innovation & Researchs**

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Empowering Youth Capacity Building on Internet Technologies: *Implementing DNS and DNSSEC infrastructure from scratch using Raspberry Pi - An Update on the DNSathon by the Benin DNS Forum*

Koupam ALASSANE,
Lead of DNSathon



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Agenda

- ❏ Benin DNS Forum : who we are?
- ❏ DNSathon!
- ❏ DNS & DNSSEC Infrastructure from Scratch
- ❏ Internet Technologies : why empowering youth?

Benin DNS Forum: who we are?

- ❑ Local Forum on Domain Name System and Internet, inspired from Africa DNS Forum. Build a strong local ecosystem on Internet and DNS issues, improve engagement, gender & diversity on IG, and improve technical capability and entrepreneurship.
- ❑ Open and inclusive model : 5 local associations work together
- ❑ 5 days event with various activities :
 - Woman DNS Academy,
 - Multi-stakeholder meeting for managers and executives,
 - DNSathon (hackathon on DNS),
 - Public forum with panels and tutorials (Parakou and Cotonou),
 - Internet City.
- ❑ Reports available at <https://dnsforum.bj/rapports/>

DNSathon!

- ❑ DNS + Hackathon or hackathon on DNS,
- ❑ Introduced in BDF 2017 agenda following the local community's interest in learning and understanding the technical implementation of the DNS hierarchy,
- ❑ Each edition composed of 50 to 60 engaged participants with a high collaborative approach contribute to the implementation of a prototype of the end-to-end DNS Infrastructure with DNSSEC.
- ❑ Use Raspberry Pi 3 devices and produce a white book to help other communities.



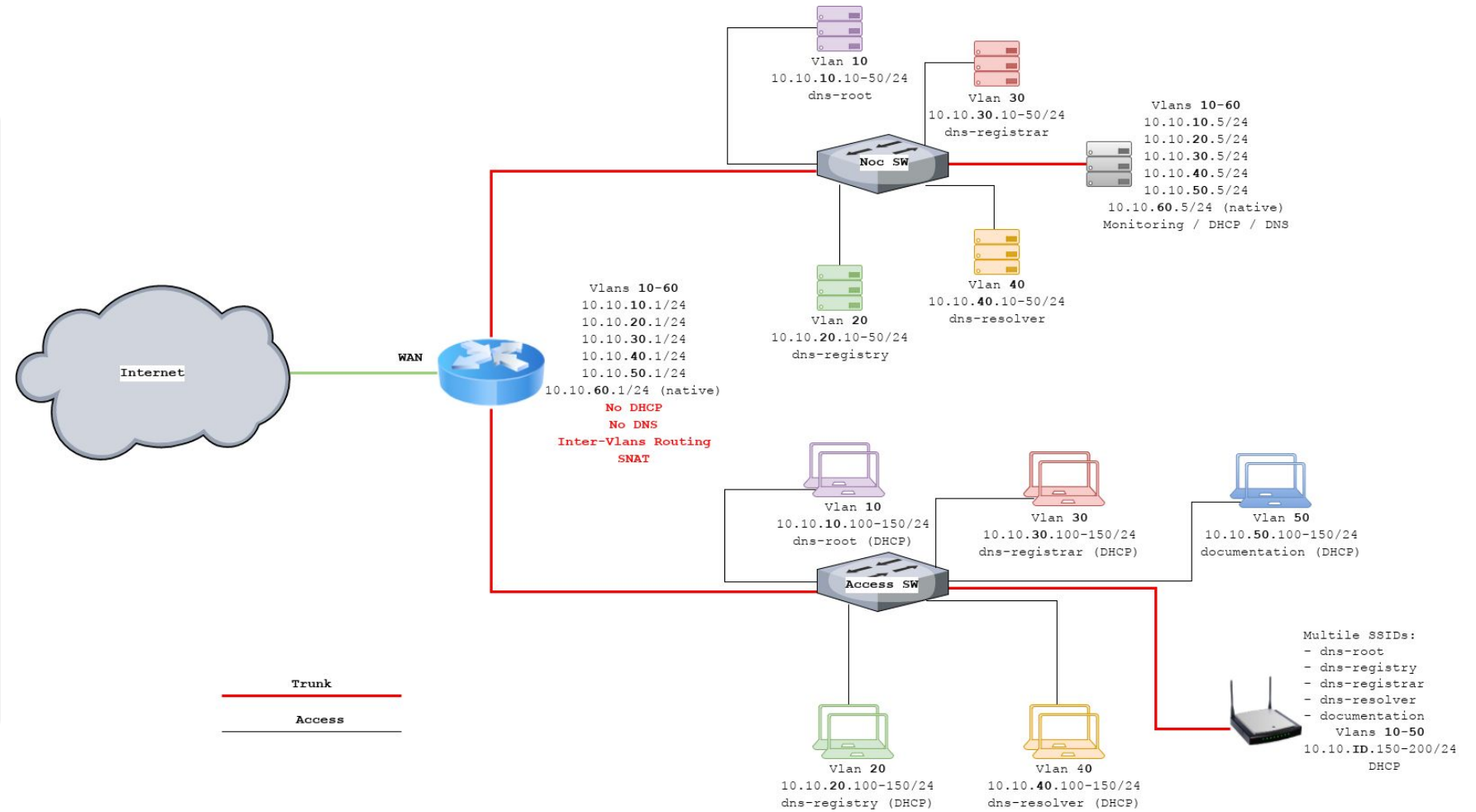
DNS & DNSSEC Infrastructure from Scratch

DNS & DNSSEC Infrastructure from Scratch : Team Structure

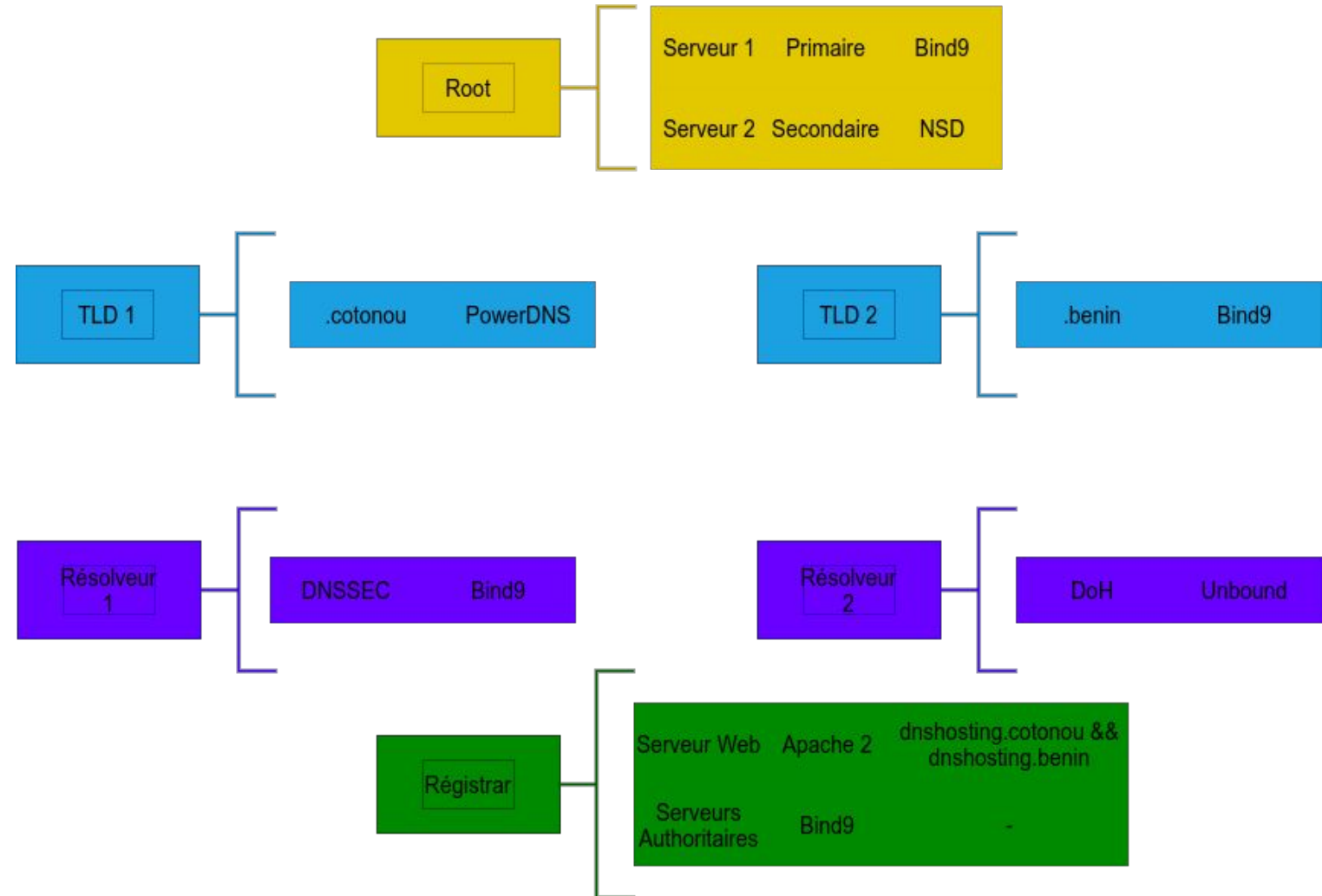
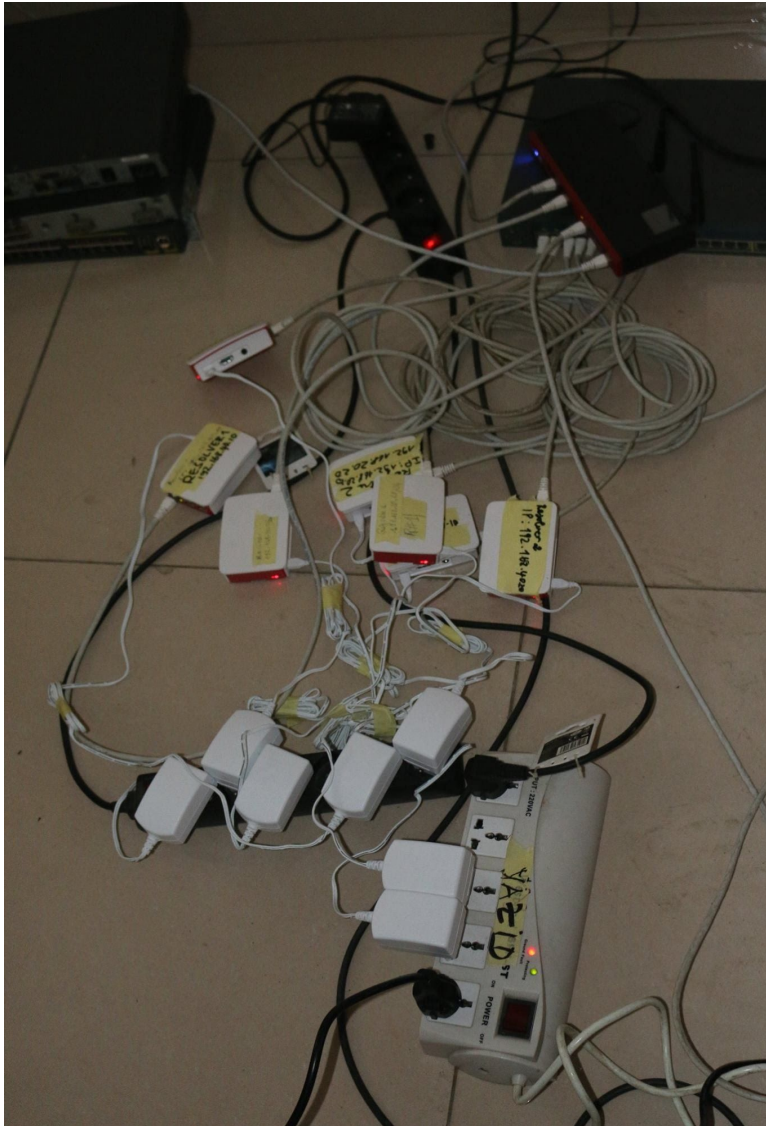
1	dns-infra	• build the network and connect resources • monitoring
2	dns-root	• Configure authoritative server. • Create custom root hints. • Publish custom root hints with a web server. • Sign zone.
3	dns-registry	• Configure authoritative server. • Create two TLDs: • Open API (zone operation) request from registrar or write custom EPP. • Serve as NS for registrar zones. • Sign zones.
4	dns-registrar	• Connect to registry API/EPP and create domains under TLDs • Create automatic domain registration portal. • Use resolver team resolver. • Sign zone.
5	dns-resolver	• Get root hints from root team web server. • Install resolver and configure it with custom root hints. • Deploy small web app (one page) for registered domains (web server). • Enable DoT and DoH
6	documentation	• Coordinate with team s • Organize team activities presentation break • Continuously update Dnsathon report.

DNS & DNSSEC Infrastructure from Scratch : Tools and Architecture

- switches
- router
- Raspberry-Pi
- Cable
- Computer
- Internet



DNS & DNSSEC Infrastructure from Scratch : Tools and Softwares



Outcomes and Perspectives

- Outcomes from the DNSathon
 - Better understanding of how things work
 - More confidence
 - Encourage collaboration
- what next?
 - Dual stack infrastructure (with IPv6)
 - Applied Best practices such KINDNS

We are also

- Available to support other communities to reproduce.
- Motivation to learn and engagement to organize.

Internet Technologies : why empowering youth?

- The Role of Youth in Internet Technology
 - digital natives, having grown up with the internet
 - empowering youth in Internet technology is vital for continued **innovation**, digital equity, and a **brighter future**.

Youths should seek to better understand and get involved in the various working groups surrounding the operation of the Internet, such as the IETF, ICANN, RIR, etc...



Thank you, Merci!