

Today

UNIK 4700

- challenges Wi-Fi:

- your topic

1) Idea

2) measure/model

3) presentation + model results

UNIK 4700 - Challenge Wifi

Reality in 2016: Bad indoor coverage - WLAN is helping



- Telenor will solve challenges of indoor coverage
 - Voice over Wifi (VoWifi)
 - Voice of LTE (VoLTE)

VOLTE & VOWIFI

Telenor Norge vil løse innendørsdekningen

Med dårlig innendørsdekning fra mobilnettet vil WiFi redde situasjonen.

AV: ODD RICHARD VALMOT | TELE-KOMMUNIKASJON | PUBLISERT: 24. FEB. 2016 - 09:03

<http://www.digi.no/artikler/telenor-norge-vil-lose-innendørsdekningen/320592>

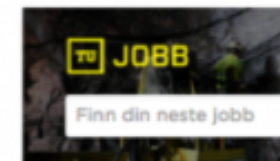


Facebook

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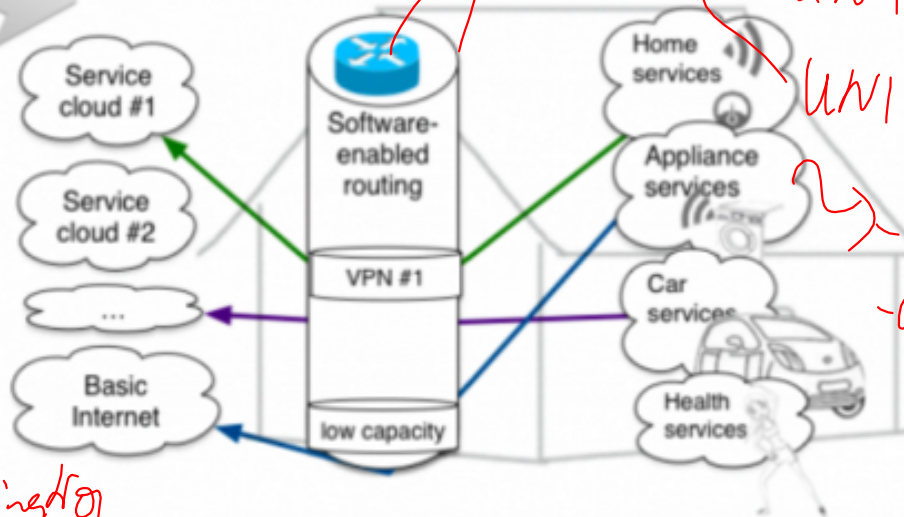
Twitter

BARCELONA (digi.no): Telenor Norge benyttet anledningen under Mobile World Congress til å annonsere slutten på dårlig innendørsdekning. Ikke bare vil de løse problemet ved å la telefonene kommunisere via kundenes egne mobiltelefoner, de vil også gi dem veldig mye bedre samtalekvalitet.



Future Service Requirements (in a wireless infrastructure)

- "we have no control of what is going on in Wifi"
- "only 25% of broadband customers experience the speed they got promised"
- more than 75% of all calls to ISPs is related to wireless
- over 90% of boxes sent to ISP are fully functional



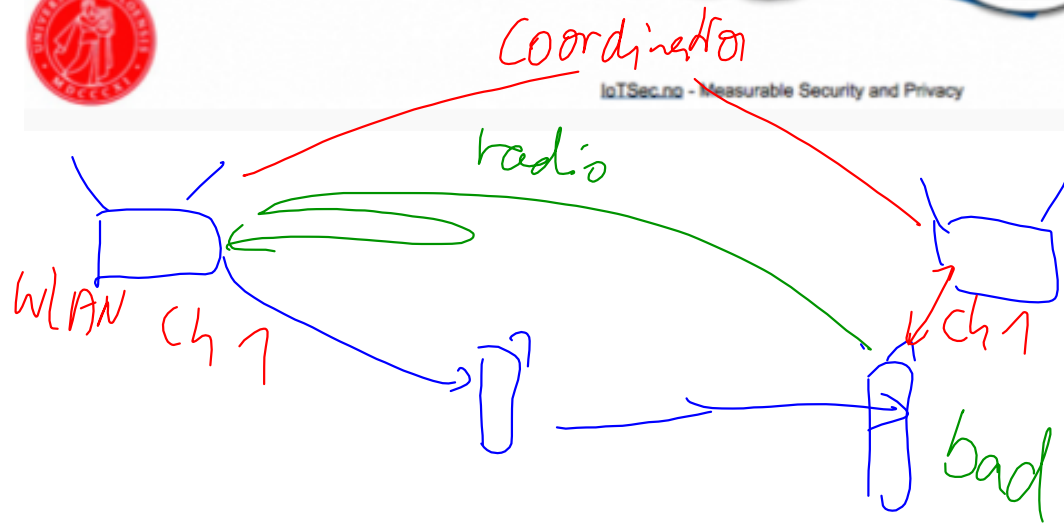
Managed Wifi:
 VPN/VLAN - eduroam
 - UNIK
 UNIK_Guest
 BW
 -access rights



IoTSec.no - Measurable Security and Privacy

June2016, Josef Noll

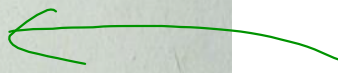
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Home
 in place for business

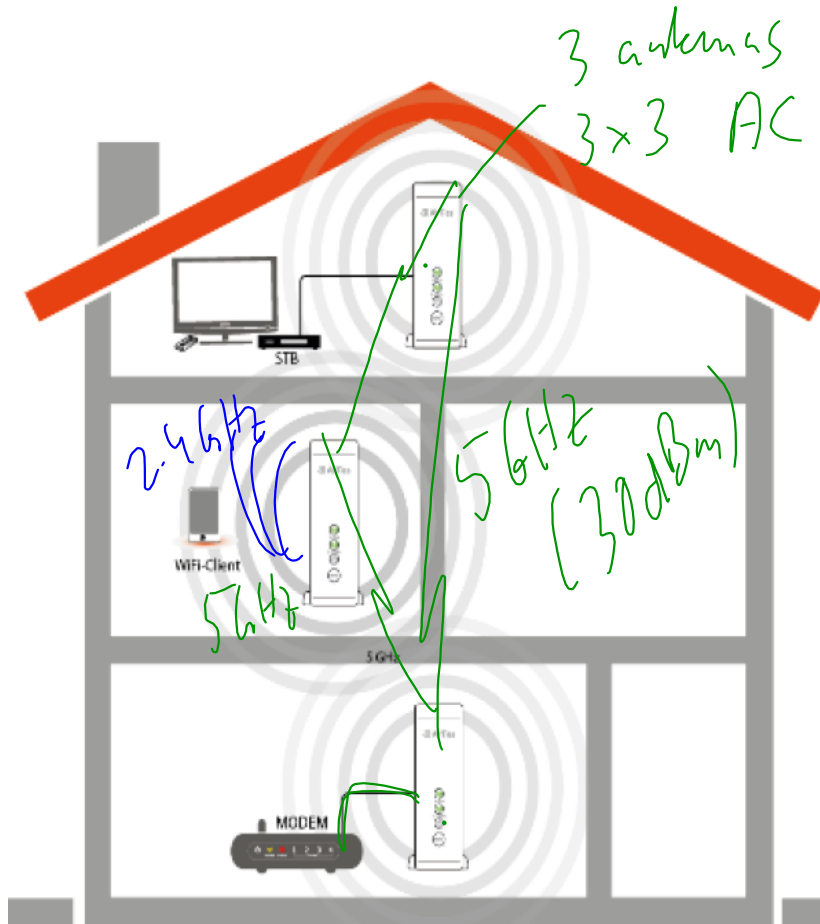


Capacity



More radios (in a mesh)

logofelt.jpg

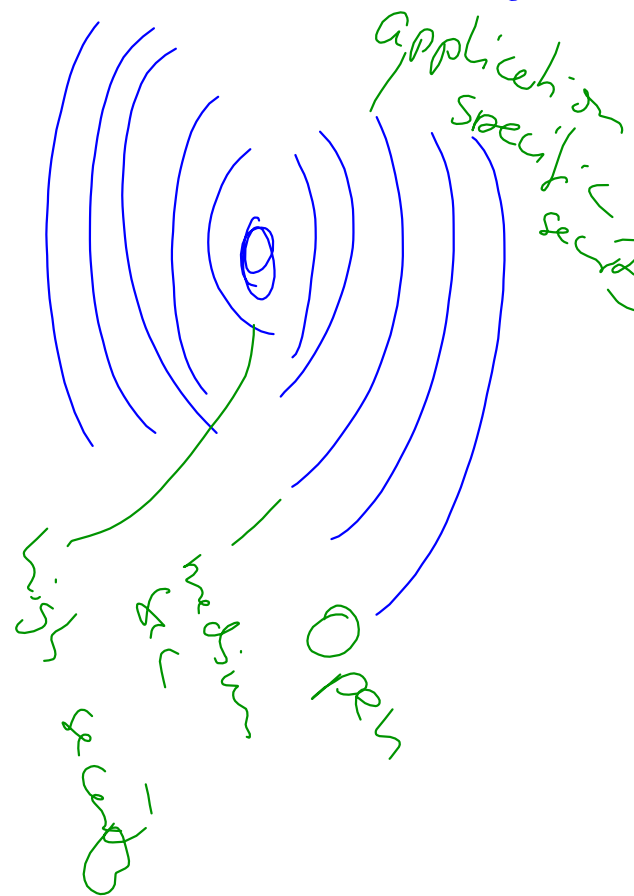


- > No bad apples
- > APs use WDS not AP | STA => Both bands for clients
- > Self healing
- > Auto distribution config
- > Best path per packet
- > Handles many devices

- > Proprietary AirTies Mesh – 802.11s not good enough

Separate networks

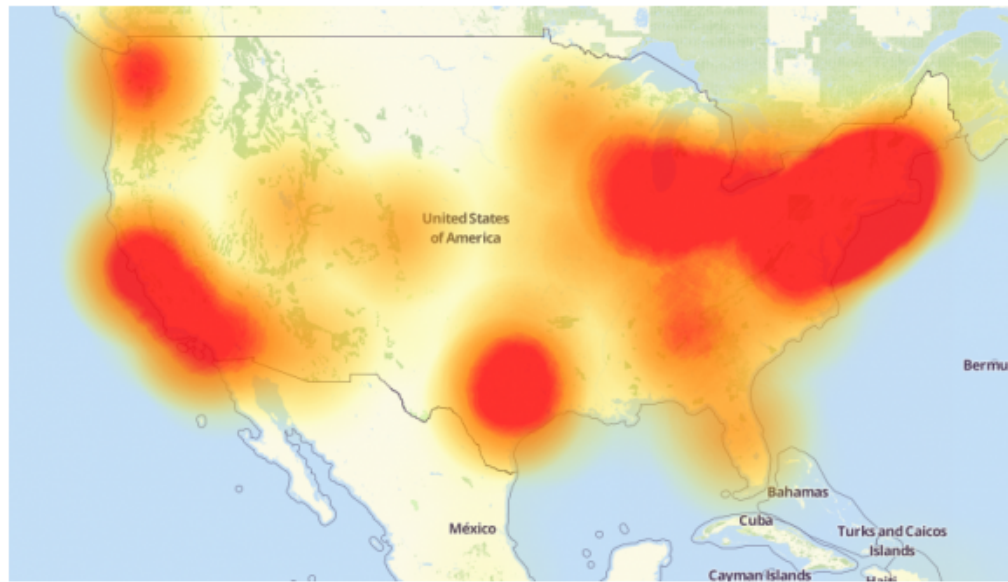
Onion approach
for security



21 Hacked Cameras, DVRs Powered Today's OCT 16 Massive Internet Outage

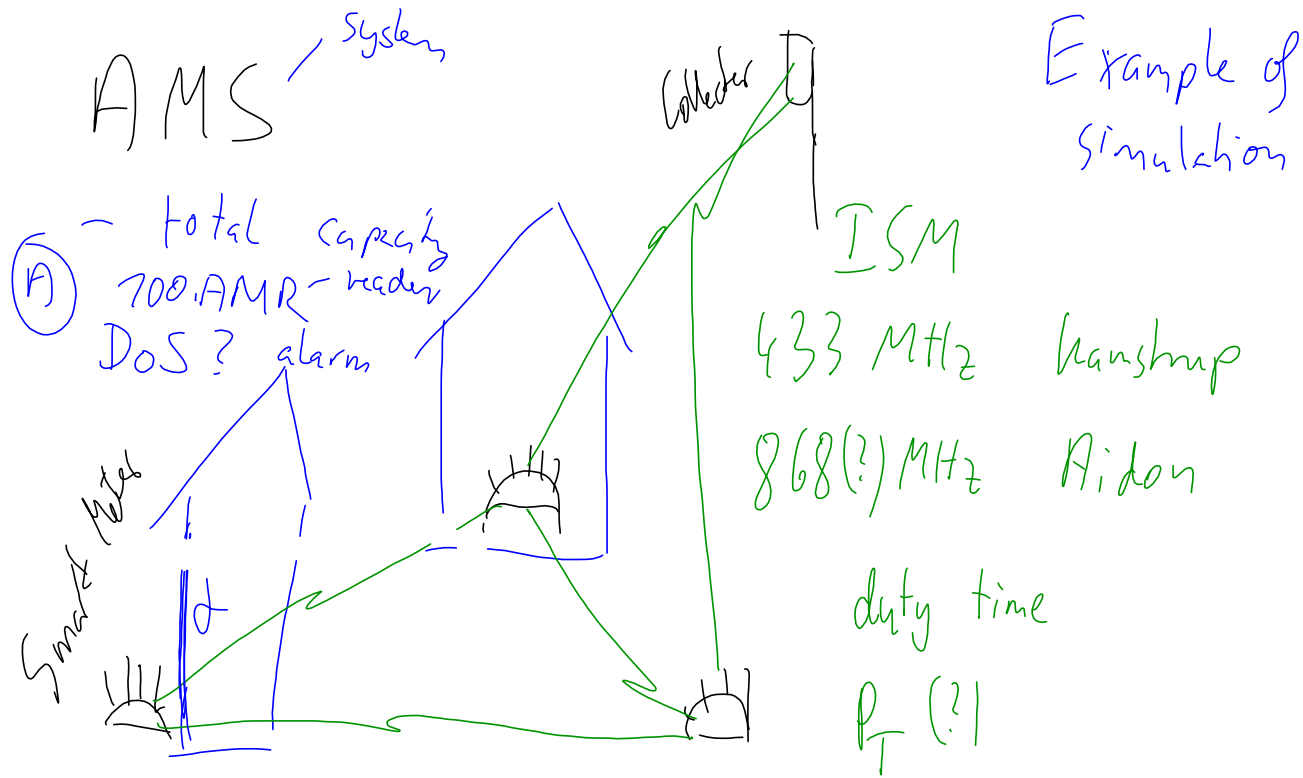
A massive and sustained Internet attack that has caused outages and network congestion today for a large number of Web sites was launched with the help of hacked "Internet of Things" (IoT) devices, such as CCTV video cameras and digital video recorders, new data suggests.

Earlier today cyber criminals began training their attack cannons on **Dyn**, an Internet infrastructure company that provides critical technology services to some of the Internet's top destinations. The attack began creating problems for Internet users reaching an array of sites, including Twitter, Amazon, Tumblr, Reddit, Spotify and Netflix.



A depiction of the outages caused by today's attacks on Dyn, an Internet infrastructure company. Source: Downtetector.com.

16 Oct
2016



- (B) Propagation
- 3 meters
 - distance
 - wall insulation
 - shadow

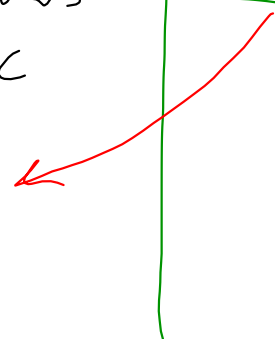
other tools 2.4 / 5GHz

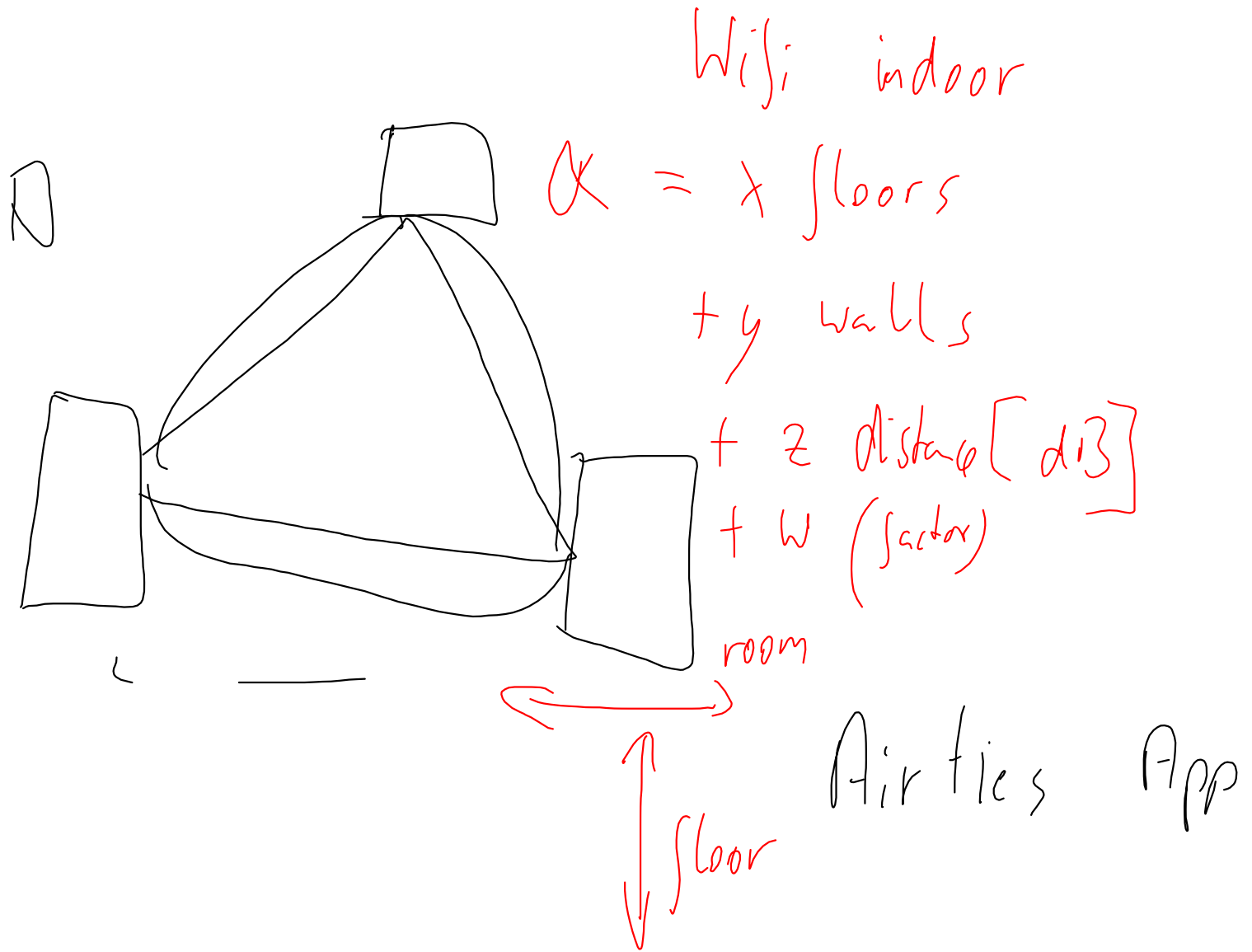
drawing Tools — Android
— Windows
Arylic

measures → path

Capacity ?

interference (10 AP ch 9)





796

J. NOLL AND E. BURACCHINI

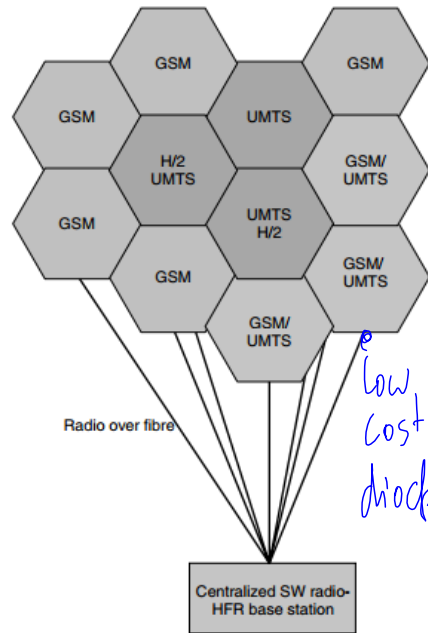


Fig. 8. Migration from 2G to 3G networks.

and provides protection of investments. The system reprogrammability allows hardware reuse and the inclusion of future access methods such as UMTS TDD and Hiperlan/2. The same phenomenon is likely to be experienced for mobile terminals.

virtual fibre?

the development and methods [14]:

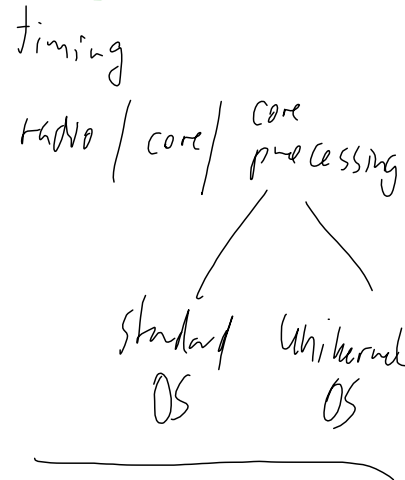
- Digital audio broadcast (DAB) and digital video broadcast (DVB) broadcasting.
- Mobile Broadband (MBS 60).
- Broadband wireless access (BWA).
- The proposal for 4G.

5. Outlook

The paper has described the development of 4G mobile networks. It has shown that different radio access technologies can be combined in a Hybrid Fibre Radio (HFR) architecture. A successful demonstration of a 20-km-long fibre-based HFR system has been presented. The combined use of fibre and radio access units [15].

HFR is able to transport multiple radio access standards currently around the world. However, the feeder design may vary. It is identified as a very promising technology for the future in order to provide wireless access by satellite (picocells) and outdoor radio in this sense.

5G requirements



Higher frequency 30GHz



Simon

nodes

specs

expectations

measure

model

interference

Wireless

Sensor

Networks

