

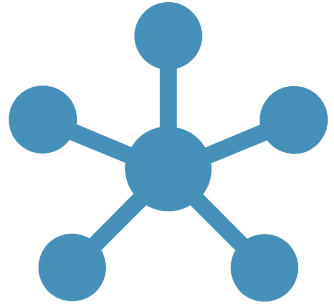


INFORMATION CENTRIC NETWORKING

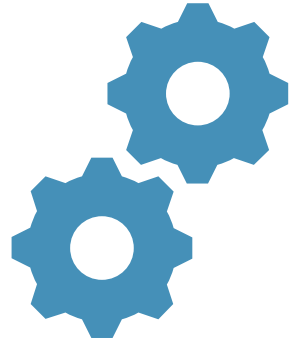
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OPENING ARGUMENT

Information-Centric Networking (CCN) was introduced as a novel approach to host-centric Internet architecture. Using content names instead of IP addresses enables effortless access to data, irrespective of location. Named Data Networking (NDN) is the preferred method of implementing Information-Centric Networking, offering a fresh start to the hierarchical content while enhancing scalability and facilitating mobility through route aggregation. This transformative approach holds immense potential for shaping the future of the Internet, offering enhanced scalability, efficiency, and security (Hussaini et al. 2019).



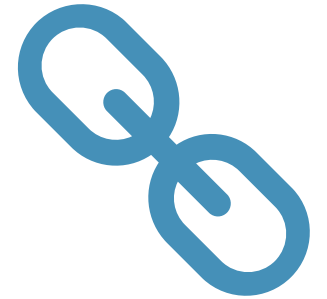
Scalability



Efficiency



Security



Compatibility

KEY ARGUMENTS

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- **Scalability:** CCN's content-centric methodology eliminates the need to uphold routing tables for every reachable host, thereby considerably simplifying network complexity and facilitating smooth scaling for supporting vast content and devices. (Ding et al., 2016)
- **Efficiency:** CCN's forwarding mechanism based on names eradicates the requirement for explicit routing, resulting in quicker packet delivery and decreased latency, particularly for frequently accessed content. (Ding et al., 2016)
- **Security:** CCN's content-centric architecture inherently segregates content from the network infrastructure, rendering it more impervious to attacks that capitalise on routing vulnerabilities or compromise network nodes. (Ding et al., 2016)
- **Compatibility:** CCN is compatible with IP, it can be deployed incrementally with the existing (ipv4 and ipv6) infrastructure. (Jacobson *et al.*, 2009)

ARGUMENTS AGAINST OTHER TECHNOLOGIES

- In today's age the information (the what) is becoming more important than “where” the information comes from. The IP stack (ipv4 and ipv4) is focussed on “the where”. Traditional IP-based communication data gets encrypted with TLS on the transport layer. NDN encrypts on the data level, which does not use any more middleboxes. (Jacobson *et al.*, 2009)
- TCP/IP protocols have weak scalability in large networks, low efficiency in dense environments and unreliable addressing in high mobility circumstances. (Chen *et al.*, 2020)



THANK YOU

GROUP I

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- Hussaini, M., Awang Nor, Ts.Dr.S. & Ahmad, A. (2019). *Overview of Future Internet: Named Data Networking*. https://www.researchgate.net/publication/338293900_Overview_of_Future_Internet_Named_Data_Networking.
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- Chen, C., Wang, C., Qiu, T., Atiquzzaman, M. and Wu, D.O. (2020) 'Caching in Vehicular Named Data Networking: Architecture, Schemes and Future Directions', *IEEE Communications Surveys & Tutorials*, 22(4), pp. 2378–2407. Available at: <https://doi.org/10.1109/COMST.2020.3005361>.
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