# A 5G access admission control architecture based on service offloading technology

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#### Abstract

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- We deeply discuss the 5G access admission control system based on traffic offloading technology.
- We focus on its key technologies, system architecture and security.
- The study aims to provide valuable insights for the development and optimization of 5G networks and provide guidance for future research and practice.

## Introduction

- 5G access admission control is an important mechanism in 5G communication networks. It can manage and control which user devices can be connected to the network and ensure efficient allocation.
- The network security access admission control system helps enterprises to filter illegal users, illegal attacks, illegal access, and provides digital security guarantees.
- It provides a more secure and reliable digital environment for the society.



Fig. 1. UL CL technical architecture.

- UL CL supports forwarding uplink traffic to different Protocol data unit (PDU) session anchor UPF.
- the downlink business flows from different PDU session anchor UPFs on the link are merged to the 5G terminal.
- DNN technology requires the terminal to configure a special DNN and sign a special DNN in the core network Unified data management (UDM) function.
- Users initiate a session establishment request through a dedicated DNN.



Fig. 2. The technical architecture within DNN.

#### Architecture

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Intranet domain fine management system

- The 5G private network service contract management needs to dock with the operator BOSS and authentication system.
- Users order government oriented traffic packets and open 5G private network services.



Fig. 3. 5G private network service signing business logic diagram.



Fig. 4. 5G terminal access business logic diagram.



Fig. 5. 5G intranet rights management service logic diagram.

 The 5G accompanying private network UL CL, DNN and other technologies are used to realize the diversion and isolation of the enterprise external network and the Internet.

# **Typical Application**

 The 5G government external network covers the whole scene of 2B/2C





Fig. 6. Network security control system network architecture.

government affairs, providing more convenient, safer and better network services.

 The government network security quasi control system performs secondary identity authentication for "Qinzhengtong" 5G users to access the private network through Radius messages.

Fig. 7. A system architecture that meets both security and control requirements.

### Conclusions

• this paper uses 5G native Radius secondary authentication to ensure the security of the private network.

• We can provide more flexible and reliable 5G private network services for various application scenarios, and promote the healthy development of 5G networks and social stability.