cloud security

CCAF:
Cloud Computing Adoption Framework

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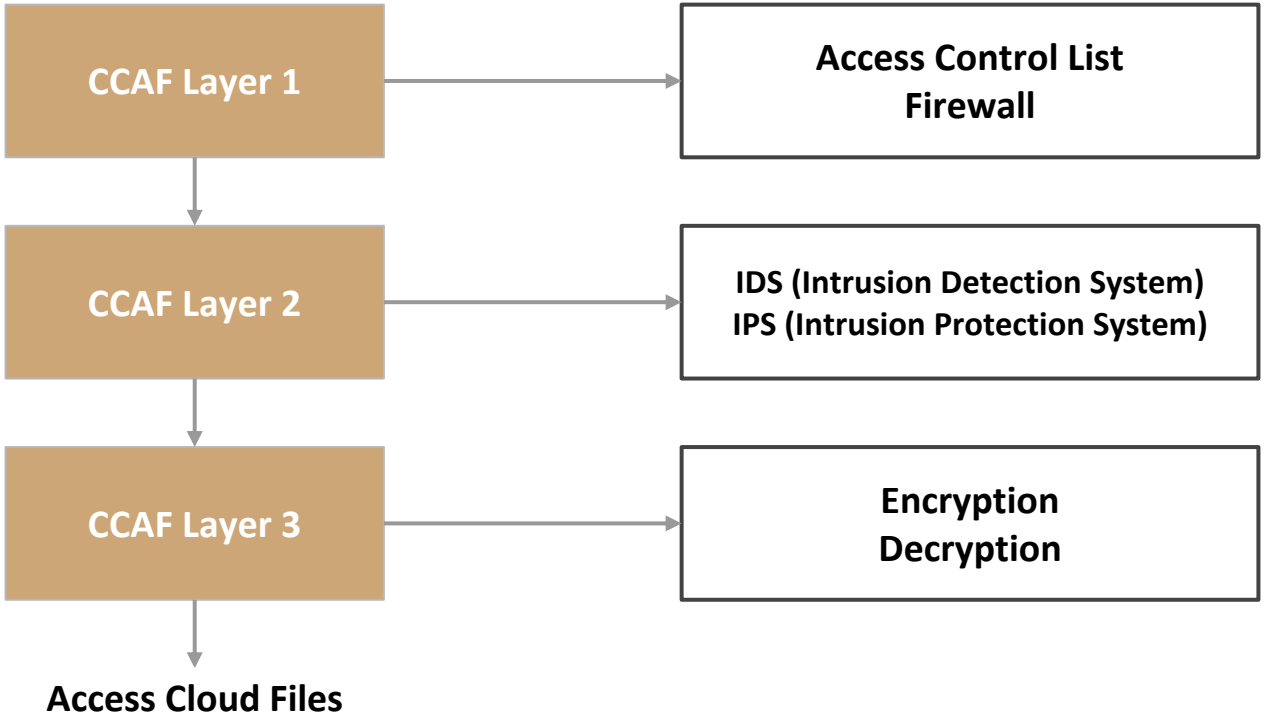
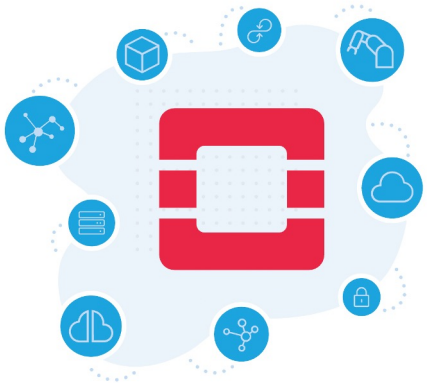
CCAF Security Layers



EFSS: Enterprise File Sync and Share Service



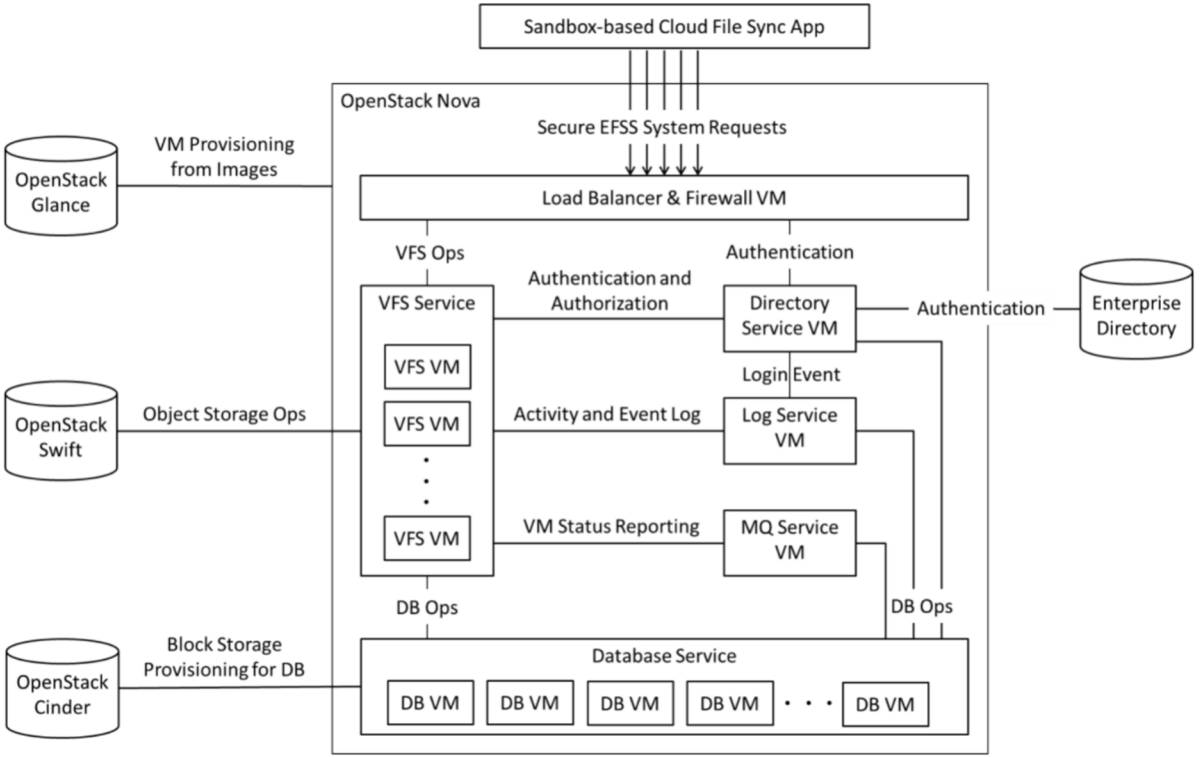
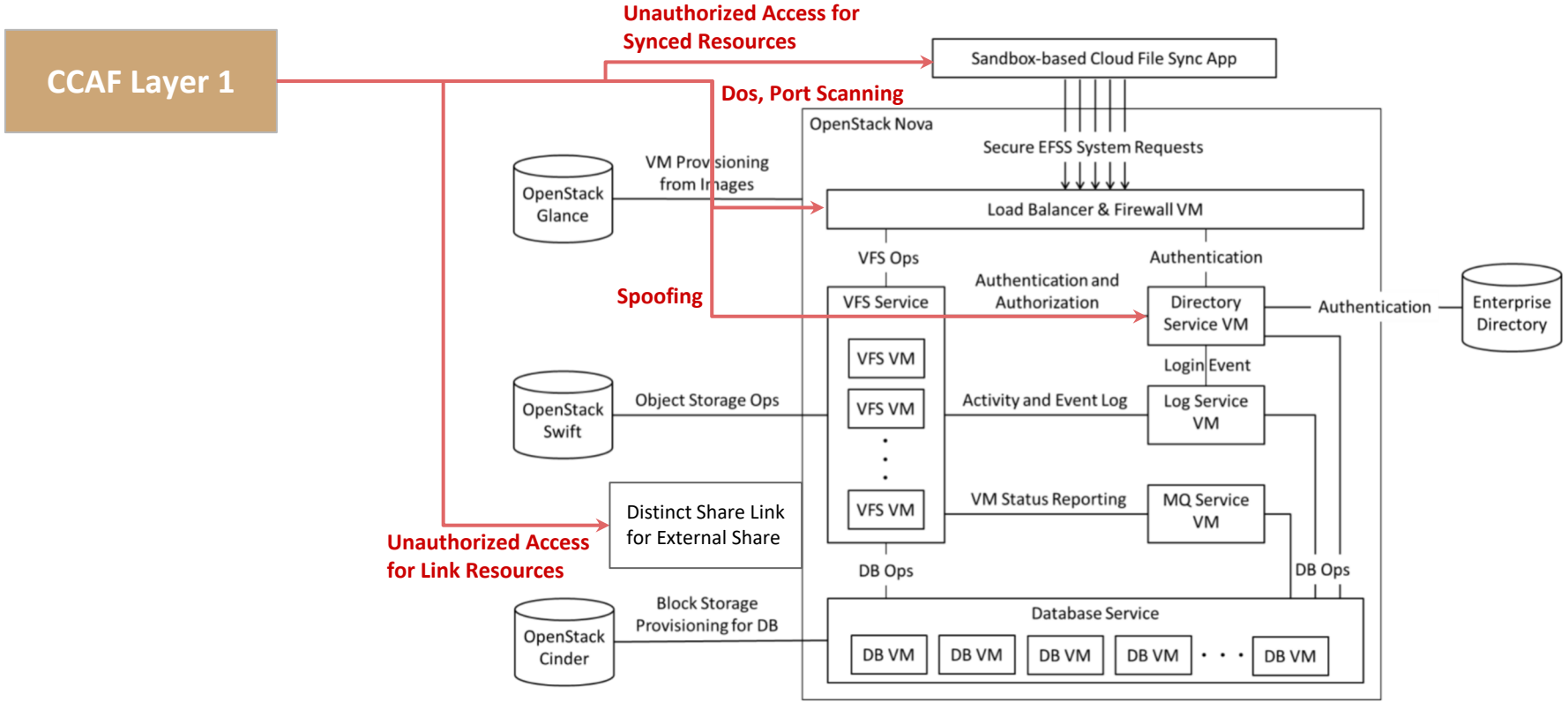
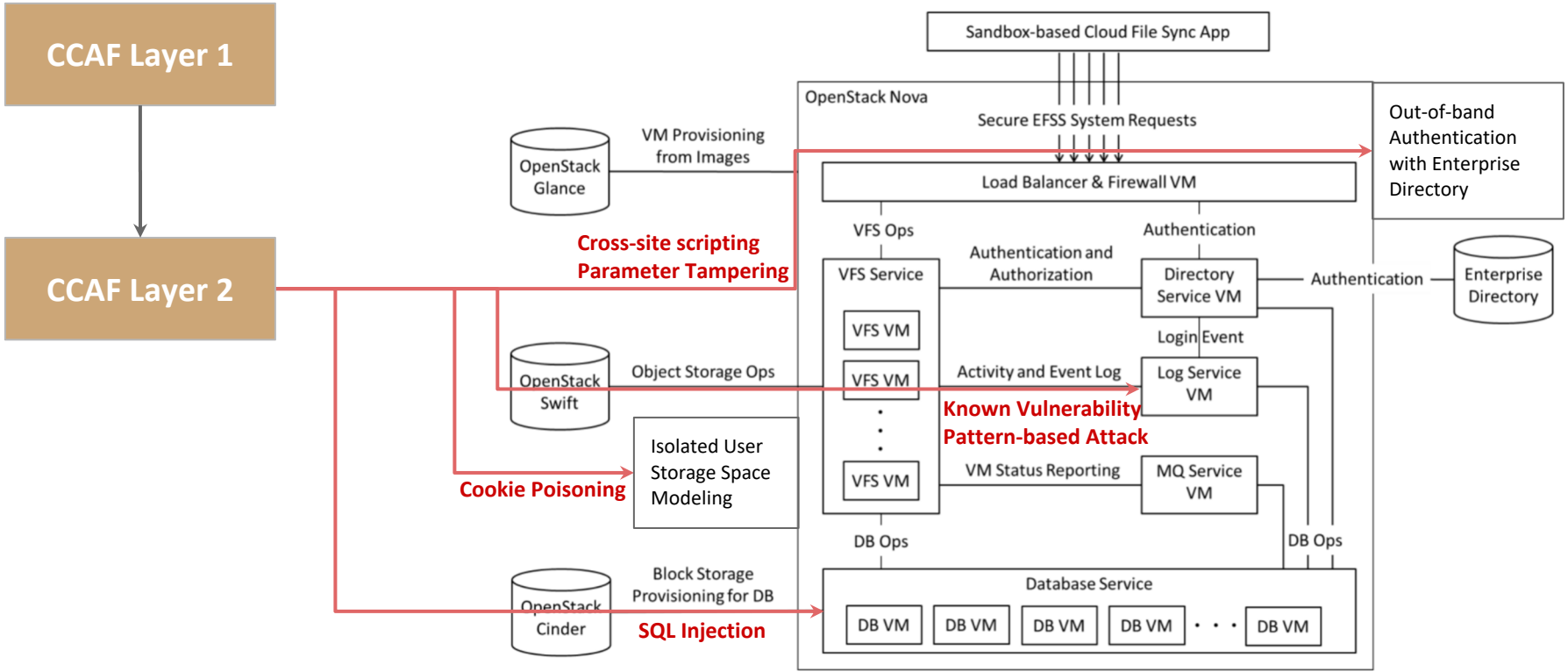


Image 1: EFSS as an instance of CCAF

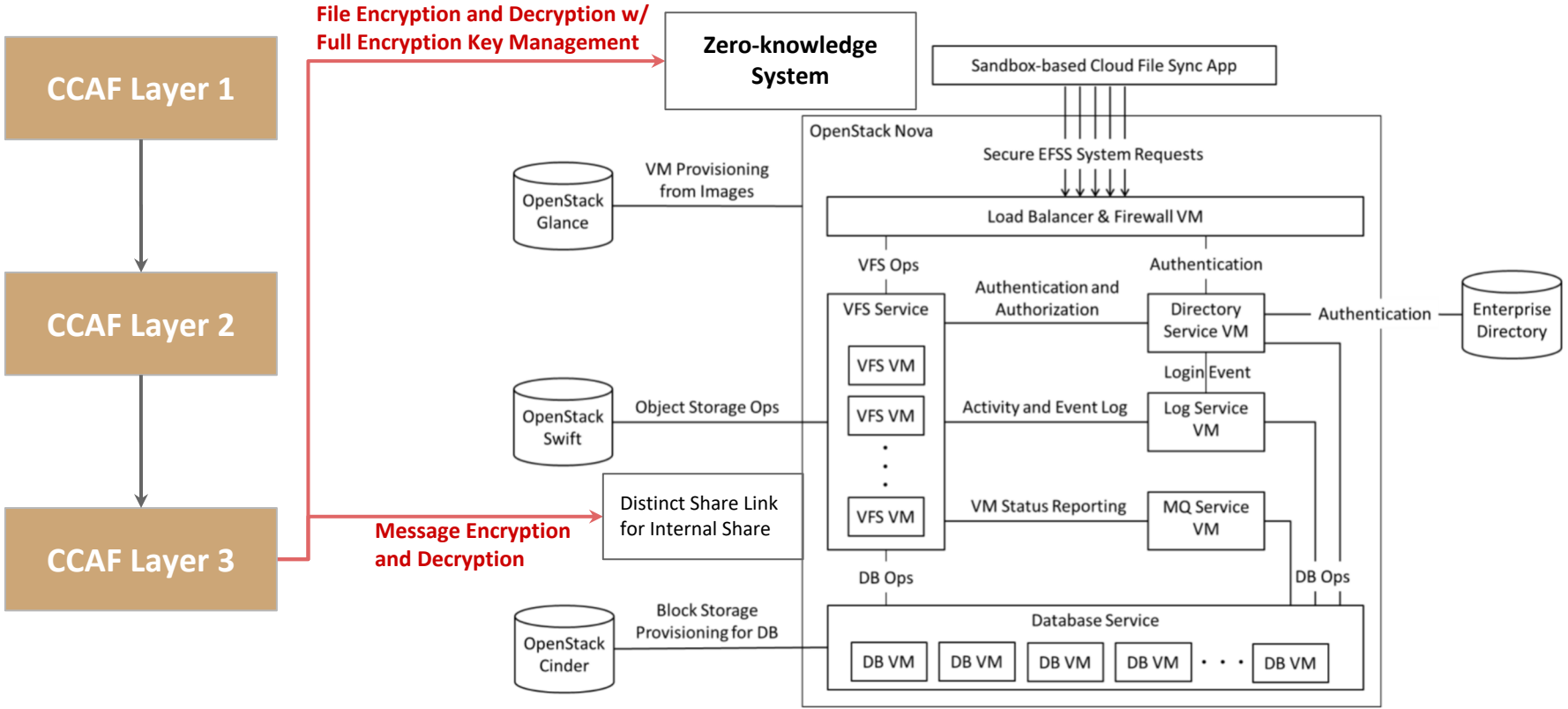
Implementation Details – Layer 1



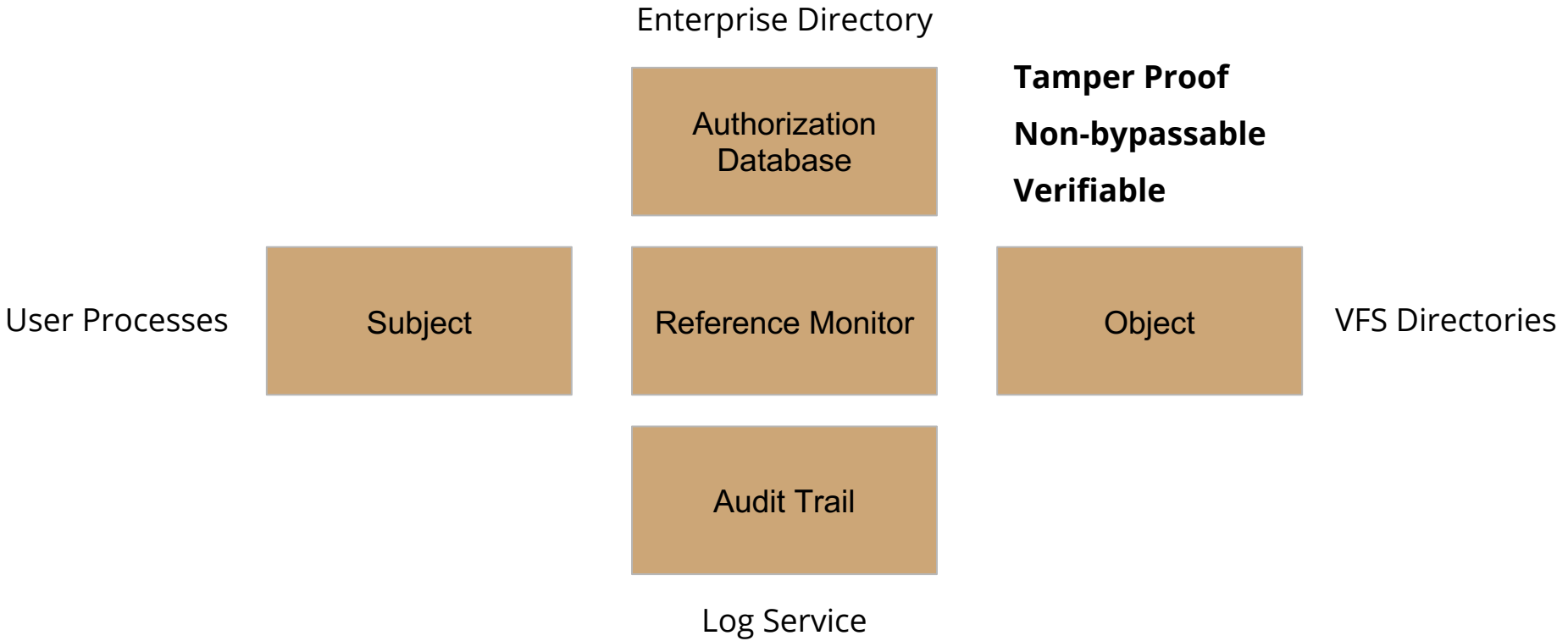
Implementation Details – Layer 2



Implementation Details – Layer 3



Reference Monitor vs. CCAF



Advantages and Limitations

Unique Advantages

- **Isolated personal storage space protects** enterprise employees' privacies as well as increases system scalability;
- **Distinct Share Link** supports secure sharing with internal enterprise colleagues and external business partners;
- **The sandbox-based cloud file synchronization** extends the enterprise domain to employees' endpoint devices to prevent data leaks caused by file synchronization;
- **Out-of-band authentication** uses proxy-based authentication to protect the enterprise directory and also prevent the employees' sensitive data to be logged by untrustworthy services.

Limitations

- Computation Costing/Time Costing when transferring data (encryption)
- Individual safety (personal VFS)

References

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2. R. Kumar and M. P. S. Bhatia, "A Systematic Review of the Security in Cloud Computing: Data Integrity, Confidentiality and Availability," 2020 IEEE International Conference on Computing, Power and Communication Technologies (GUCON), 2020, pp. 334-337, doi: 10.1109/GUCON48875.2020.9231255.
3. Ashish Singh, Kakali Chatterjee, Cloud security issues and challenges: A survey, Journal of Network and Computer Applications, Volume 79, 2017, Pages 88-115, ISSN 1084-8045
4. OpenStack Compute (nova), https://docs.openstack.org/nova/latest/