Survey on: A Cloudlet Based Open Platform for In-Network System

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Abstract – Internet was designed and framed with a dedicated infrastructure as to provide end to end facility in data communication and sharing. With the advancement, the internet has incorporated many applications and demand based services. Here in this paper we present a survey on internet platform for inhouse network and its services. This survey also focuses on current schemes and techniques to make the system a better platform oriented in various dynamic scenarios and conditions.

Index Terms – Cloudlets, datasets, open-frame platform

I. INTRODUCTION

The internet was formulated in a lower commercial platform under Arpanet protocol and gradually gained the heights of complexities with point to point data delivery option. In this modern era of data sharing and connectivity, internet has contributed a major share. Thus as the demand increased so led the expansion of internet. This expansion decreased the connectivity ratio and also low power consummation has gradually reduced overall network security. Today as internet has expanded throughout globe, the services and cost model has also increased and thus the economy is affected. In order to maintain a higher scalability on internet, many middle boxes are introduced such as firewalls, caches and ISP's. in this environment, ISP are coupled with middle boxes to achieve a greater connectivity.

As internet infrastructure is improvised with time, our major focus is to provide an open platform to achieve a wide range of services and this improves the performance ratio and system failure rate. Thus we present a survey in this paper on Cloudlets, these cloudlets provide a wide range of add-on under services for a given instant of time.

II. LITERATURE REVIEWS

In this session, a brief survey and enhancive comments are incorporated regarding Cloudlets and services provided under this scheme related to open platform and internet connectivity.

Open Platform

Packet cloud and cloudlets offer flexibility in ISP's and running third party applications under content providing and revoking. Under



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open platform, deployed services are offered to cloud under non organic existence. These services are future detached under nominal service norms. The fetched services are used under optimized cost..

This in-general provides a cost efficient service and also a higher performance ration. Under ISP deployment, the cloud packets are directly reemployed and rented for a given time in a performed task.

Key Enumerations for Cloudlets

The cloudlets are designed under these key conditions.

- Cloudlets are simulated under a real-time and logical environment. Thus the system is fully functional and scalable.
- Location snooping scenarios are evaluated under higher key priority.
- Intrusion detection is also evaluated for both simulated and experimental values.

Under cloudlets based paper, a public cloud data centers are allocated under which a detailed scenario of big data analysis and cloud data merging is resisted. In [1] the proposed model is formulated with all key priority values. Thus from our survey an analysis is projected as i) deploying private cloud centers are expensive ii) maintained cloud environment are un-real and thus requires higher concentration on services relocating rather than outsourcing.

III. CRITICS ON PACKET CLOUD AND CLOUDLETS.

The main agenda of developing a packet cloud is to restrict outsourcing mechanism to avoid resource waiting delay and increase reliability and scalability options. Under Fig 1, an overview of cloudlets projection is made available. This arrangement is an expensive and cost creeping for more complex and hyper effective methods.

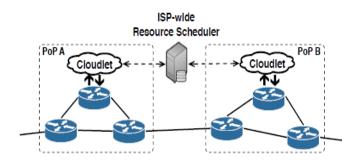


Fig 1: Framework for Cloudlets

Each cloudlet is considered as a resource pool and hence data exchange from internet and devices is monitored under these scheduler techniques and in-network deployment is carried out for more flexible and effective communication and resource utilization.

Key Attributes on Stack

Cloud packets are designed with an intension to relocate a resource under a scalable and most flexible infrastructural environment.

- *Elasticity:* As internet is expanding, the demand of data under load sharing has increased. Hence to serve the demand on priority, Elasticity of network is considered as important goal
- *Efficiency*: the zonal demand for data under cloud is efficiency on accessing and caching.
- *Security:* Cloud is a third party service provider and hence a concern of security is considered.
- *Transparent Services*: The Cloud services are more reliable and hence act under a visible channel for more clear and trusted resource pooling.

Resource Adjustment

Packet cloudlets providers offer a service to imbed a scalability property with an auto adjust feature on dynamic resource rescheduling and sharing. Domain service provider can reserve slots of data for fast gonad recovery. This feature



in cloudlets improves the efficiency on resource optimization and refining.

IV. DISCUSSIONS

From our survey a premium analysis has been conducted on various protocols and its features used by Cloudlets and packet cloud environment. The survey also highlights the use of private cloud in implementation as it is expansive and thus alters the system economic conditions and makes its services expensive and hybrid.

The cloudlets are used to enhance the system performance in cloud environment and thus an enhancement option is reviewed for future work under a hypostatical environment. The main objective of this survey paper is to highlight major system positive remarks for cloudlets and hence no claim on the matter, subject and review is under taken.

REFERENCES

- 1. Saltzer, J. H., Reed, D. P., & Clark, D. D. (1984). End-to-end arguments in system design. *ACM Transactions on Computer Systems (TOCS)*, 2(4), 277-288.
- Vu, T., Baid, A., Zhang, Y., Nguyen, T. D., Fukuyama, J., Martin, R. P., & Raychaudhuri, D. (2012, June). Dmap: A shared hosting scheme for dynamic identifier to locator mappings in the global internet. In 2012 IEEE 32nd international conference on distributed computing systems (pp. 698-707). IEEE.
- Dogar, F. R., Phanishayee, A., Pucha, H., Ruwase, O., & Andersen, D. G. (2008, September). Ditto: a system for opportunistic caching in multi-hop wireless networks. In *Proceedings of the 14th ACM international conference on Mobile computing and networking* (pp. 279-290).
- Li, M., Agrawal, D., Ganesan, D., Venkataramani, A., & Agrawal, H. (2009, April). Block-switched Networks: A New Paradigm for Wireless Transport. In *NSDI* (Vol. 9, pp. 423-436).
- Liu, X., Yang, X., & Lu, Y. (2008, August). To filter or to authorize: Network-layer DoS defense against multimillion-node botnets. In *Proceedings of the ACM SIGCOMM 2008 conference on Data communication* (pp. 195-206).

- 6. Carpenter, B., & Brim, S. (2002). *Middleboxes: Taxonomy and issues* (No. rfc3234).
- Martins, J., Ahmed, M., Raiciu, C., Olteanu, V., Honda, M., Bifulco, R., & Huici, F. (2014). {ClickOS} and the Art of Network Function Virtualization. In 11th USENIX Symposium on Networked Systems Design and Implementation (NSDI 14) (pp. 459-473).
- Sekar, V., Egi, N., Ratnasamy, S., Reiter, M. K., & Shi, G. (2012). Design and implementation of a consolidated middlebox architecture. In 9th USENIX Symposium on Networked Systems Design and Implementation (NSDI 12) (pp. 323-336).
- Sherry, J., Hasan, S., Scott, C., Krishnamurthy, A., Ratnasamy, S., & Sekar, V. (2012). Making middleboxes someone else's problem: Network processing as a cloud service. ACM SIGCOMM Computer Communication Review, 42(4), 13-24.
- Satyanarayanan, M., Bahl, P., Caceres, R., & Davies, N. (2009). The case for vm-based cloudlets in mobile computing. *IEEE pervasive Computing*, 8(4), 14-23.
- Li, A., Yang, X., Kandula, S., & Zhang, M. (2010, November). CloudCmp: comparing public cloud providers. In *Proceedings of the 10th ACM SIGCOMM conference on Internet measurement* (pp. 1-14).
- 12. Laoutaris, N., & Rodriguez, P. (2008). Good things come to those who (can) wait. In *Proc of ACM HotNets*.
- Sherr, M., Mao, A., Marczak, W. R., Zhou, W., Loo, B. T., & Blaze, M. A. (2010). A³: An Extensible Platform for Application-Aware Anonymity.
- 14. Edman, M., & Syverson, P. (2009, November). ASawareness in Tor path selection. In *Proceedings of the 16th ACM conference on Computer and communications security* (pp. 380-389).
- 15. Sreedhar Kumar, S., Ahmed, S. T., & Vinutha, B. A. NishaBhai." Type of Supervised Text Classification System for Unstructured Text Comments using Probability Theory Technique.". *International Journal of Recent Technology and Engineering* (*IJRTE*), 8.
- 16. Patil, K. K., & Ahmed, S. T. (2014, October). Digital telemanmography services for rural India, software components and design protocol. In 2014 International Conference on Advances in Electronics Computers and Communications (pp. 1-5). IEEE.
- 17. Ahmed, S. T., Sreedhar Kumar, S., Anusha, B., Bhumika, P., Gunashree, M., & Ishwarya, B. (2018, November). A Generalized Study on Data Mining and Clustering Algorithms. In *International Conference On Computational Vision and Bio Inspired Computing* (pp. 1121-1129). Springer, Cham.

