TeamF1 networks

WHITE PAPER

Indian Government Digitalization

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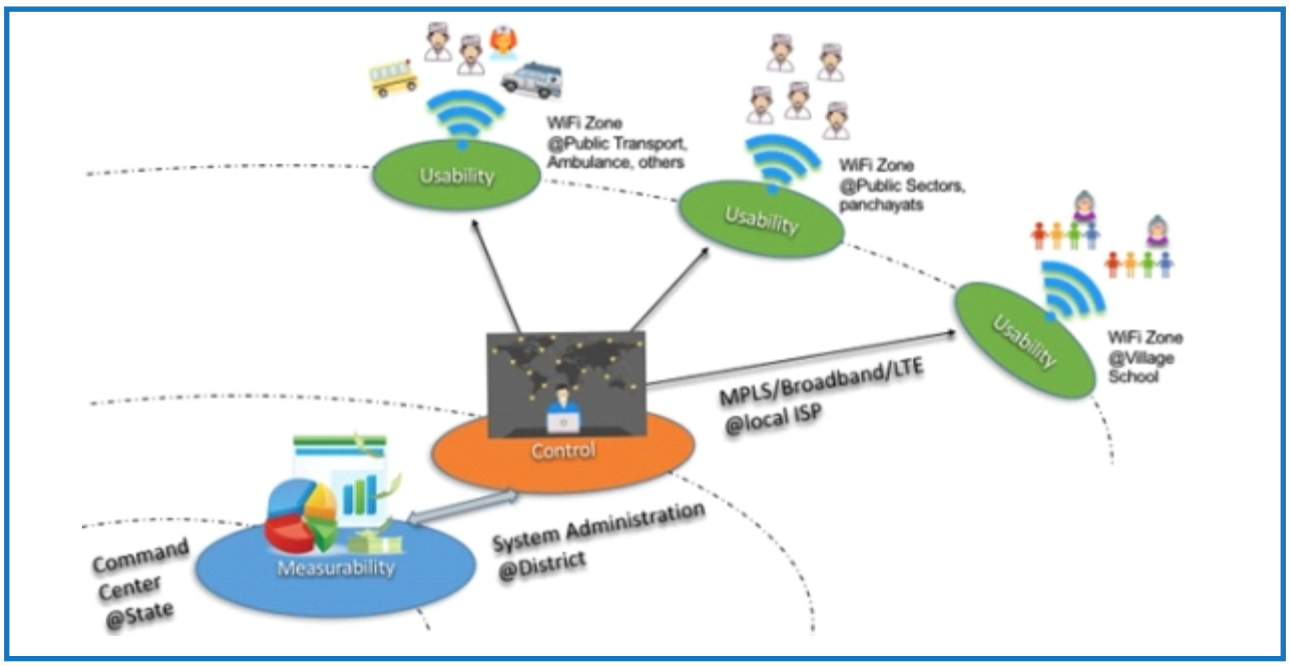
Indian government's digitalization initiative is spearing towards connected knowledge economy by providing basic development services, internet access to rural areas, bringing interactive education to villages, connecting all gram panchayats, and promoting e-governance.

The reach and use of the services is directly impacted by the broadband infrastructure availability (last mile connectivity) and the end devices which facilitate internet access to the communities.

The key elements governing the digitalization penetration and adoptability while ensuring the solution is cost effective are listed below.

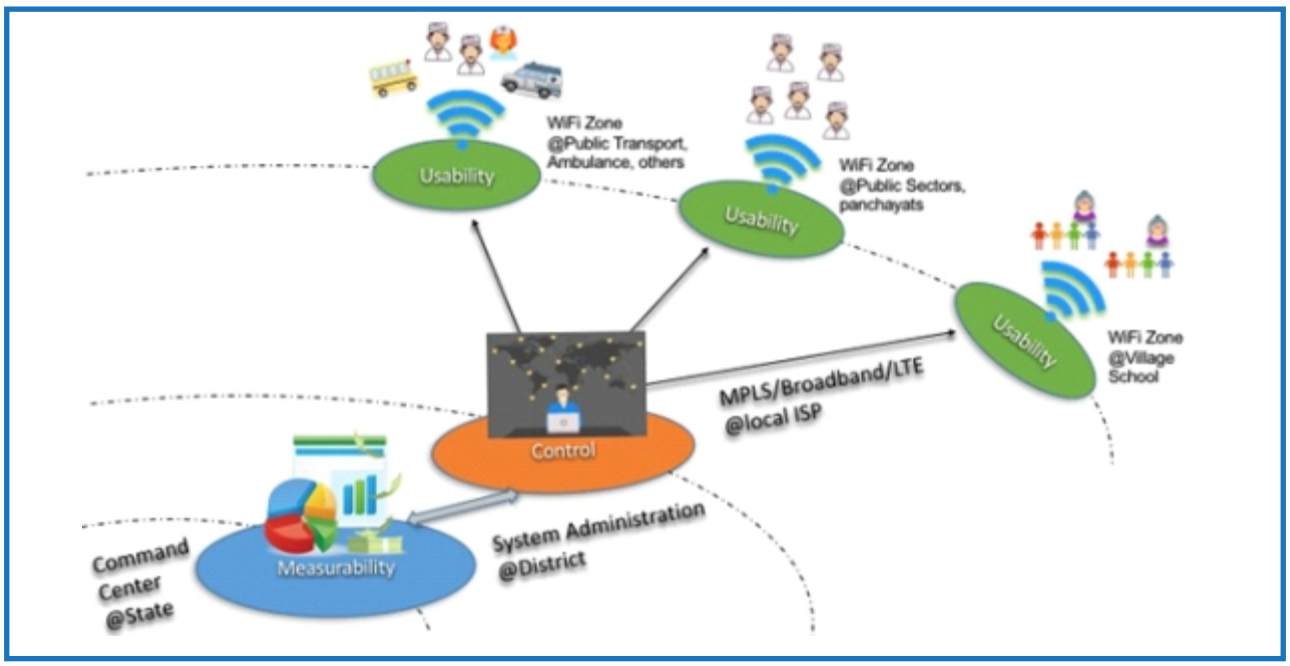
Elements	Description	Usage
Measurability	Equipped with analytics, statistics related to the usage and trending patterns.	Traffic usage statistics, device health (offline/online), geo map dashboard, user engagement with services stats, and others.
Control	Helps SI's, system administrators, MSP's to ensure the uptime, policy updates & debugging remotely without the need of onsite visit.	Firmware upgrade(s), internet usage policies updates, traffic shaping, traffic control, remote trouble shooting, central logging for security audits and others.
Connectivity	Flexibility of choosing the last mile back-haul based on the challenges and feasibility.	MPLS, leased line, broadband connectivity and/or LTE/4G.
Usability	Ensuring seamless access to the services in various environments and network/services uptime.	Wi-Fi coverage, seamless roaming, uninterrupted connectivity, user equipment compatibility across various generations.
Extensibility	Infrastructure scalability with minimal or no changes to back-bone infrastructure, catering to the growing user base, services and new use-cases.	Adding Video conferencing, learning videos, surveillance, remote auditing, and others.

The following diagram illustrates the above elements.



It has been observed that even in the 21st century, many rural regions in India are deprived of the basic facilities like education, water, electricity, medical, etc. The major reason behind this is the connectivity between these rural areas and the cities. The diagram shown above describes the possible solution to handle the problem of connectivity. The solution consists of the following four areas: Wi-Fi zone, Connectivity (MPLS/Broadband/LTE), Control Unit, and Command Center. The Usability facilitates connectivity to the various government sectors like medical, education, panchayat, electricity board and many more. The basic necessity is to provide internet access to all the available mobiles, kiosks, PoS, digital learning equipment in the remote areas so that they can always be connected to the central system. The Control Unit which is present between the Command Center and the Usability sector plays a vital role in collecting the digitized data from all the sectors and then transferring it to the Command Center. It is also responsible for filtering the incoming internet information and providing only relevant information to the users. E.g. it is important to block some data if the internet is used in an education sector. The data which is transferred from the control unit is monitored, displayed and analyzed at the Command Center. The analyzed results are presented graphically on a dashboard where it provides status of all the sector-specific centers present in the remote areas. On the basis of these results, various problems can be resolved remotely.

This solution is very useful in keeping a check on the activities going on in the rural areas. This is done by installing CCTV/surveillance cameras and transferring information to the command center. Various government activities like inspections, audits, staff attendance, remote troubleshooting of any installed device, etc can also be easily monitored and performed using this system without paying a personal visit. This further saves time and money. In future, if there is a need to enhance the features, the solution provides an extensibility option to add new features easily. The digitalized system provides a cost effective, zero maintenance, and efficient solution to keep a check on all the government sectors from a single center. This solution is a step towards Digital India.



Illustrating key elements in play with critical use-cases

TeamF1 Networks

TeamF1 Networks specializes in developing high-performance networking and security software products, which help in future-proofing the digital network connectivity and security roadmap for embedded devices. TeamF1 Networks' network security solutions empower wired and wireless devices world-wide for small and medium businesses and residential networks. This includes applications ranging from business security gateways, UTM firewalls and network storage devices to home gateways and service provider routers.

The access points scattered at multiple geographical locations to provide seamless connectivity can also be remotely controlled using the latest and proven technology "Cloud Computing." TeamF1 Networks provides Cloud Solution which has the ability to virtually manage, monitor, and control the widely spread APs and push configuration to all the APs at one go without adding any delay. It also provides continuous auto-updates to the client in case latest updates are available. This provides massive scalability, providing virtually unlimited resources to the client. The software or additional devices for network expansion can be easily deployed from any location through remote management.

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