

Some references may be made to: “Paper 3 – case study: a new computer aided dispatch system for Bangbai”

| Key term | Definition/Context/Example | Source |
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| <p>Application programming interface (API)</p> | <p>Def 1 - “An API is a set of commands, functions, protocols, and objects that programmers can use to create software or interact with an external system. It provides developers with standard commands for performing common operations so they do not have to write the code from scratch.”</p> <p>Def 2 - “An application program interface (API) is a set of routines, protocols, and tools for building software applications. Basically, an API specifies how software components should interact. Additionally, APIs are used when programming graphical user interface (GUI) components. A good API makes it easier to develop a program by providing all the building blocks. A programmer then puts the blocks together.”</p> <p>My Def - An API is a routine, function, protocol and/or object that is utilized to provide standard commands for performing common operations so they do not have to write the code from scratch</p> <p>Usage - this could allow the new EMIS system to be readily integrated into the existing Bangbai’s CAD system.</p> | <p>Source 1 - Techterms.com. (2018). <i>API (Application Program Interface) Definition</i>. [online] Available at: https://techterms.com/definition/api [Accessed 3 Nov. 2018].</p> <p>Source 2 - Webopedia.com. (2018). <i>What is API - Application Program Interface? Webopedia Definition</i>. Vangie Beal. [online] Available at: https://www.webopedia.com/TERM/A/API.html [Accessed 6 Nov. 2018].</p> |
| <p>Client side random</p> | <p>This definition was almost the same for many sources.</p> <p>In Paper 3: “Rahul has been investigating the following algorithms for load balancing: • client side random”</p> <p>Load Balancing (Source 1) - “In computing, load balancing improves the distribution of workloads across multiple computing resources, such as computers, a computer cluster, network links, central processing units, or disk drives.”</p> | <p>Source 1 - Wiki Visually. (2018). <i>Load Balancing</i>. [online] Available at: https://wikivisually.com/wiki/Load_balancing_%28computing%29#cite_note-1-1 [Accessed 3 Nov. 2018].</p> <p>&& Ntrs.nasa.gov. (2018). [online] Available at: https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19860014876.pdf [Accessed 3 Nov.</p> |

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| | <p>Client Side Random Load Balancing (Source 2) - “Client-side random load balancing is to deliver the IPs of a list of server to client from that the client will randomly select the IP for establishing the connection. It generally rely on all clients for generating common loads. The random selection of IP will provide fault tolerance. Server-side load balancer is a software through which any external clients can access the server. It may also replicate the session persistence data if it is required by some specific application”</p> <p>My Def - a method of load balancing, where the client is responsible for deciding where to send the traffic using an algorithm, like round-robin. It can either discover the instances, via service discovery, or it can be configured with a predefined list of IPs usually for establishing connections allowing generation of common loads.</p> <p>Usage - Rahul said it will be used for “load balancing”; thus improving the distribution of workloads across multiple computing resources such as the computers on the ECC.</p> | <p>2018].</p> <p>Source 2 - Acadpubl.eu. (2018).Client Side Random Load Balancing [online] Available at: https://acadpubl.eu/hub/2018-119-15/4/706.pdf [Accessed 3 Nov. 2018].</p> |
| <p>Cluster</p> | <p>Def 1 (Source 1) - “A computer cluster is a single logical unit consisting of multiple computers that are linked through a LAN. The networked computers essentially act as a single, much more powerful machine. A computer cluster provides much faster processing speed, larger storage capacity, better data integrity, superior reliability and wider availability of resources.”</p> <p>Def 2 (Source 2) - “In its most basic form, a cluster is a system comprising two or more computers or systems (called nodes) which work together to execute applications or perform other tasks, so that users who use them, have the impression that only a single system responds to them, thus creating an illusion of a single resource (virtual machine).”</p> <p>My Def - Is a single logical unit consisting of multiple computers that</p> | <p>Source 1 - Techopedia.com. (2018). <i>What is Computer Cluster? - Definition from Techopedia.</i> [online] Available at: https://www.techopedia.com/definition/6581/computer-cluster [Accessed 3 Nov. 2018].</p> <p>Source 2 - Esds.co.in. (2018). <i>Cluster Computing: Definition and Architecture of a Cluster.</i> [online] Available at: https://www.esds.co.in/blog/cluster-computing-definition-and-architecture-of-a-cluster/#sthash.jbjLjI2x.dpbs [Accessed 3 Nov. 2018].</p> |

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| | <p>are linked through a LAN. The nodes (computers) work together to execute applications or perform other tasks, so that they act as a single, more powerful machine, typically having faster processing speed and larger storage capacity. This creates an illusion of a single resource (virtual machine).</p> <p>Usage - When using load balancing algorithms, a computer will redirect requests to any one of a group (cluster) of server machines that would be capable of handling the request.</p> | |
| <p>Cluster of servers</p> | <p>In Paper 3: “implemented on a cluster of servers” “a group (cluster) of server machines“</p> <p>Def (Source 1) - “A cluster, in the context of servers, is a group of computers that are connected with each other and operate closely to act as a single computer. Speedy local area networks enhance a cluster of computers' abilities to operate at an exceptionally rapid pace.”</p> <p><u>Explanation:</u> “Cluster are typically used for computing tasks such as algorithm decryption or scientific calculations. Cluster performance can match or exceed that of more expensive computers, sometimes even resulting in supercomputer capabilities.”</p> <p>My Def - CLUSTER DEF (above) in the context of servers. IE replacing computer with servers and emphasising the excess of storage with more than one logical unit.</p> <p>Usage - The new CAD system (the “Response” part of the Bangbai’s will be implemented on a cluster of servers which together answer queries and provide the services that users need.</p> | <p>Source 1 - Techopedia.com. (2018). <i>What is Cluster (Servers)? - Definition from Techopedia.</i> [online] Available at: https://www.techopedia.com/definition/997/cluster-servers [Accessed 3 Nov. 2018].</p> |
| <p>Commercial software</p> | <p>Def (Source 1) - “Commercial software is any software or program that</p> | <p>Source 1 -</p> |

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| | <p>is designed and developed for licensing or sale to end users or that serves a commercial purpose. Commercial software was once considered to be proprietary software, but now a number of free and open-source software applications are licensed or sold to end users.” Def (Source 2) - “Software that is designed and developed for sale to the general public.” My Def - any software that is designed and developed for licensing or sale to end users which is usually the general public. Usage - deployment type of EMIS that Rahul is considering for Bangbai that has been successful in handling growing populations and being future-proof.</p> | <p>Techopedia.com. (2018). <i>What is Commercial Software? - Definition from Techopedia</i>. [online] Available at: https://www.techopedia.com/definition/4245/commercial-software [Accessed 3 Nov. 2018]. Source 2 - Yourdictionary.com. (2018). <i>Commercial software dictionary definition commercial software defined</i>. [online] Available at: http://www.yourdictionary.com/commercial-software [Accessed 3 Nov. 2018].</p> |
| <p>Computer aided dispatch (CAD)</p> | <p>Link with ECC operators to 911 Operators Def (Source 1) - “CAD is a computer system that assists 911 operators and dispatch personnel in handling and prioritizing calls. Enhanced 911 will send the location of the call to the CAD system that will automatically display the address of the 911 caller on a screen in front of the operator. Complaint information is then entered into the computer and is easily retrievable. The system may be linked to MDTs in patrol cars allowing dispatchers and officers to communicate without using voice. The system may also be interfaced with NCIC, AVL, or a number of other programs.” Def (Source 2) - “Computer-aided dispatch (CAD), also called computer-assisted dispatch, is a method of dispatching taxicabs, couriers, field service technicians, mass transit vehicles or emergency services assisted by computer. It can either be used to send messages to the dispatchee via a mobile data terminal (MDT) and/or used to store and retrieve data (i.e. radio logs, field interviews, client information, schedules, etc.)” My Def - a computer system which assists ECC operators, which helps in dispatching emergency response vehicles such as police cars, relative to the distress call made, operated by the use of a computer(s).</p> | <p>Source 1 - Defined Term. (2018). <i>DefinedTerm: Computer Aided Dispatch</i>. [online] Available at: https://definedterm.com/computer_aided_dispatch [Accessed 3 Nov. 2018]. Source 2 - En.wikipedia.org. (2018). <i>Computer-aided dispatch</i>. [online] Available at: https://en.wikipedia.org/wiki/Computer-aided_dispatch [Accessed 3 Nov. 2018].</p> |

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| | <p>Enhanced CAD systems can handle multiple responses, such as feedback, non-emergency cases, AVL, etc.</p> <p>Usage - Used in the current system in Bangbai to coordinate the rerouting of police, firefighters and ambulances to the location of the emergency.</p> | |
| <p>Cookies</p> | <p>Def (Source 1) - “A cookie is a small amount of data generated by a website and saved by your web browser. Its purpose is to remember information about you, similar to a preference file created by a software application.”</p> <p>Def (Source 2) - “A cookie is a message given to a web browser by a web server. The browser stores the message in a text file. The message is then sent back to the server each time the browser requests a page from the server.”</p> <p>My Def - is a small amount of data generated from a web server and stored in your web browser. The data stored as the ‘cookie’ is exchanged between the web browser and web server each time the browser requests a page from the server.</p> <p>Usage - This could be used to implement messaging systems and queries which would require stateful communication, for greater functionality of the EMIS.</p> | <p>Source 1 - Techterms.com. (2018). <i>Cookie Definition</i>. [online] Available at: https://techterms.com/definition/cookie [Accessed 3 Nov. 2018].</p> <p>Source 2 - Webopedia.com. (2018). <i>What are Cookies? Webopedia Definition</i>. Vangie Beal. [online] Available at: https://www.webopedia.com/TERM/C/cookie.html [Accessed 6 Nov. 2018].</p> |
| <p>Custom software</p> | <p>Def (Source 1) - “is the solution that is specially developed for a specific user or organization, which is in contrast with broadly used mass-market software.”</p> <p>Def (Source 2) - “Software that is made just for an individual or business that performs tasks specific to their needs is called custom software”</p> <p>My Def - Software which is specifically developed for an individual or organisation, to perform a specific task or to meet the user’s needs, which previous software could not provide. This software is normally</p> | <p>Source 1 - Existek.com. (2018). <i>Custom Software Definition and Example</i>. [online] Available at: https://existek.com/blog/custom-software-definition/ [Accessed 3 Nov. 2018].</p> <p>Source 2 - Definitions, C. and Hope, C. (2018). <i>What is Custom Software?</i>. [online] Computerhope.com. Available at: https://www.computerhope.com/jargon/c/cust</p> |

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| | <p>only accessible to the company in which it is created/purchased for. Usage - It is a deployment type of EMIS that Rahul is considering for Bangbai as it has been successful in handling growing populations and being future-proof.</p> | <p>omso.htm [Accessed 3 Nov. 2018].</p> |
| <p>Emergency control centre (ECC)</p> | <p>Def (Source 1) - “is a building or room where control room operators receive incoming telephone calls from members of the public in need of assistance. Callers make initial contact through the 999 emergency telephone service, where their calls are answered at an Operator Assistance Centre (OAC). From here the telephone company's operator directs the call to the relevant ECC.” My Def - is a geographical site where people operate and respond to telephone calls from the public in need of assistance. They then using, specified software, forward information to dispatches that are in close proximity to the need. Usage - Before the use of EMIS, it is used within current implementation of the CAD system where people in the call centers handle and redirect calls to the correct places.</p> | <p>Source 1 - En.wikipedia.org. (2018). <i>Emergency control centre</i>. [online] Available at: https://en.wikipedia.org/wiki/Emergency_control_centre [Accessed 6 Nov. 2018].</p> |
| <p>Emergency management information system (EMIS)</p> | <p>Def (Source 1) - “ is a computer database system designed to support responders during emergencies by giving them detailed, real-time information, allowing them to graphically integrate it and then transmit their decisions through the chain of incident command.” Def (Source 2) - “is a computer database for disaster response that provides graphical, real-time information to responders.” My Def - is a computer database designed to support respondents to these incidents during emergencies and disaster, supplying graphical and non graphical real time information. Thus allowing easy integration of the system and easier data transmission between users and responders. Usage - An EMIS would help Bangbai to better manage disasters as it covers not just the response to an emergency, but also preparedness,</p> | <p>Source 1 - Giswebsite.com. (2018). <i>What is an Emergency Management Information System (EMIS)?</i>. [online] Available at: http://www.giswebsite.com/lkc/refs/er/tsld001.htm [Accessed 6 Nov. 2018]. Source 2 - Computersciencewiki.org. (2018). <i>Emergency management information system (EMIS) - Computer Science Wiki</i>. [online] Available at: https://computersciencewiki.org/index.php/Emergency_management_information_system_(EMIS) [Accessed 6 Nov. 2018].</p> |

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| | <p>risk mitigation and recovery.</p> | |
| <p>Emergency number</p> | <p>Def (Source 1) - “An ESN is a three to five digit number representing a unique combination of emergency service agencies (Law Enforcement, Fire, and Emergency Medical Service) designated to serve a specific range of addresses within a particular geographical area, or Emergency Service Zone (ESZ). The ESN facilitates selective routing and selective transfer, if required, to the appropriate PSAP and the dispatching of the proper service agency (ies).” My Def - is a 3 to 5 digit number representing a combination of emergency services agencies to serve a specific range of addresses within an Emergency Service Zone (ESZ). Usage - Allows Bangbai to have a dedicated number for its town meaning all calls can be redirected quicker to reduce deployment time.</p> | <p>Source 1 - Defined Term. (2018). <i>DefinedTerm: Emergency Service Number / Emergency Service Zone</i>. [online] Available at: https://definedterm.com/emergency_service_number_emergency_service_zone [Accessed 6 Nov. 2018].</p> |
| <p>Failover</p> | <p>Def (Source 1) - “Failover is the mechanism, be it automatic or manual, for bringing up a contingent operational plan” My Def - is system in which a plan is put in place when the system ‘fails’, which can be either manual or automatic, such as a backup to take over when the existing system fails. Usage - In Bangbai if a server becomes unavailable for some reason during normal operations, its functions are taken over by another server which is capable of continuing its work.</p> | <p>Source 1 - Heder, B. (2018). <i>Redundancy and failover and HA, oh my!</i>. [online] Network World. Available at: https://www.networkworld.com/article/2847353/lan-wan/redundancy-and-failover-and-ha-oh-my.html [Accessed 6 Nov. 2018].</p> |
| <p>Future-proof</p> | <p>Def (Source 1) - “Future proof is a buzzword that describes a product, service or technological system that will not need to be significantly updated as technology advances. In reality, very few things are truly future proof. In any field that depends heavily on technology, a regular cycle of replacing and updating appears to be the norm.” My Def - describes a system that will not need to be significantly updated as technology advances in the future. Usage - When Banbai implements the EMIS system, its goal will be to</p> | <p>Source 1 - Techopedia.com. (2018). <i>What is Future Proof? - Definition from Techopedia</i>. [online] Available at: https://www.techopedia.com/definition/2204/future-proof [Accessed 6 Nov. 2018].</p> |

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| | prevent huge changes in the future such as replacing parts of the system continually and allow compatibility with other information systems. | |
| Global positioning system (GPS) | <p>Def (Source 1) - "Stands for "Global Positioning System." GPS is a satellite navigation system used to determine the ground position of an object. GPS technology was first used by the United States military in the 1960s and expanded into civilian use over the next few decades. Today, GPS receivers are included in many commercial products, such as automobiles, smartphones, exercise watches, and GIS devices."</p> <p>My Def - is a satellite navigation system used to determine the ground position of an object. Mrs Varghese - Trilateration - Each point on earth will have 3 satellites visible at any time. Each satellites will transmit information at regular intervals about its position and time. These signals, travelling at the speed of light, are intercepted by your GPS receiver, which calculates how far away each satellite is based on how long it took for the messages to arrive.</p> <p>Usage - In Bangbai smartphone apps can gather global positioning system (GPS) information and provide an accurate location directly to the server with the emergency request.</p> | <p>Source 1 - Techterms.com. (2018). <i>GPS (Global Positioning System) Definition</i>. [online] Available at: https://techterms.com/definition/gps [Accessed 6 Nov. 2018].</p> <p>Also Mrs Varghese's Slides</p> |
| HTTP | <p>Def (Source 1) - "Stands for "Hypertext Transfer Protocol." HTTP is the protocol used to transfer data over the web. It is part of the Internet protocol suite and defines commands and services used for transmitting webpage data."</p> <p>My Def - is a protocol used to help in the transfer of data over the web. Structured using the OSI model.</p> <p>Usage - used by the current systems for basic information exchange, for the implementation in Bangbai, it can encourage greater functionality to the EMIS.</p> | <p>Source 1 - Techterms.com. (2018). <i>HTTP (Hypertext Transfer Protocol) Definition</i>. [online] Available at: https://techterms.com/definition/http [Accessed 6 Nov. 2018].</p> |
| Load balancing algorithm | <p>This definition was almost the same for many sources. In Paper 3:</p> | <p>Source 1 - Wiki Visually. (2018). <i>Load Balancing</i>.</p> |

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| | <p>“Rahul has been investigating the following algorithms for load balancing:</p> <ul style="list-style-type: none"> • client side random” <p>Load Balancing (Source 1) - “In computing, load balancing improves the distribution of workloads across multiple computing resources, such as computers, a computer cluster, network links, central processing units, or disk drives.”</p> <p>My Def - Load balancing algorithms improves the distribution of workload across multiple computing resources, such as in computer clusters</p> <p>Usage - When there is an increase in usage, it may generate excessive load on the servers at very busy periods. Here these algorithms can be used to redirect requests to any one of a group (cluster) of server machines that would be capable of handling the request.</p> | <p>[online] Available at: https://wikivisually.com/wiki/Load_balancing_%28computing%29#cite_note-1-1 [Accessed 3 Nov. 2018].</p> <p>&& Ntrs.nasa.gov. (2018). [online] Available at: https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19860014876.pdf [Accessed 3 Nov. 2018].</p> |
| <p>Multitier architecture</p> | <p>Def (Source 1) - “is a software architecture in which different software components, organized in tiers (layers), provide dedicated functionality. The most common occurrence of a multi-tier architecture is a three-tier system consisting of a data management tier (mostly encompassing one or several database servers), an application tier (business logic) and a client tier (interface functionality). Novel deployments come with additional tiers. Web information systems, for instance, encompass a dedicated tier (web tier) between client and application layer.”</p> <p>My Def - is a software architecture in which different software components, organised in layers, provide dedicated functionality such as the three tier model which is divided into a data management layer, an application layer and a client tier.</p> <p>Usage - To handle the increasing workload produced by citizens reporting many non-urgent issues and requesting the automatic dispatch of emergency services. This separates into tiers which could then be distributed across as many servers as necessary to meet</p> | <p>Source 1 - Spinger. (2018). <i>Multi-Tier Architecture</i>. [online] Available at: https://link.springer.com/referenceworkentry/10.1007%2F978-0-387-39940-9_652 [Accessed 6 Nov. 2018].</p> |

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| | the demands of the users. | |
| Proxy server | <p>Def (Source 1) - “A proxy server is a server that sits between a client application, such as a Web browser, and a real server. It intercepts all requests to the real server to see if it can fulfill the requests itself. If not, it forwards the request to the real server.”</p> <p>My Def - is a server which is located between an application such as a web browser and a server; with the intent to intercept all requests made to the server to see if it meets the requirements for a valid request itself, if it cannot it will allow the request to be sent onwards to the server</p> <p>Usage - Allows users in Bangbai to not share their location and so can access the EMIS via the proxy whilst still concealing their location.</p> | <p>Source 1 - Webopedia.com. (2018). <i>What is a Proxy Server? Webopedia Definition</i>. [online] Available at: https://www.webopedia.com/TERM/P/proxy_server.html [Accessed 6 Nov. 2018].</p> |
| Real-time | <p>Def (Source 1) - “Data processing that appears to take place, or actually takes place, instantaneously upon data entry or receipt of a command.”</p> <p>My Def - Real time data processing, is where data is processed instantly on input.</p> <p>Usage - As the system in Bangbai is critical and needs to be attended to immediately, to fix or prevent a situation, such as a fire, real-time data processing is used to allow deployment to be almost instantaneous, instead of waiting for other tasks to be completed first.</p> | <p>Source 1 - BusinessDictionary.com. (2018). <i>What is real time processing? definition and meaning</i>. [online] Available at: http://www.businessdictionary.com/definition/real-time-processing.html [Accessed 6 Nov. 2018].</p> |
| Redundancy | <p>Def (Source 1) - “Any deliberate duplication or partial duplication of circuitry or information to decrease the probability of a system or communication failure.”</p> <p>My Def - Deliberate duplication of data, chiefly for backup purposes if the storage device may fail for any reason, such as a hardware failure.</p> <p>Usage - This will increase the loads given to servers but prevent loss of critical data which will be needed by any EMIS and CAD system.</p> | <p>Source 1 - TheFreeDictionary.com. (2018). <i>Redundancy (computing)</i>. [online] Available at: https://encyclopedia2.thefreedictionary.com/Redundancy+(computing) [Accessed 6 Nov. 2018].</p> |
| Representational state | Def (Source 1) - “REST, or REpresentational State Transfer, is an | Source 1 - |

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| <p>transfer (REST)</p> | <p>architectural style for providing standards between computer systems on the web, making it easier for systems to communicate with each other. REST-compliant systems, often called RESTful systems, are characterized by how they are stateless and separate the concerns of client and server. We will go into what these terms mean and why they are beneficial characteristics for services on the Web.”</p> <p>My Def - architecture for providing standards between systems (computer) on the web. This allows easier communication between computers & people operating them.</p> <p>Usage - Will act as specific protocol that uses more than one communications channel (for example,multiple TCP/IP Sockets) to simultaneously transmit different types of data. Allowing people to make use of the CAD system via this API.</p> | <p>Codecademy. (2018). <i>What is REST?</i> Codecademy. [online] Available at: https://www.codecademy.com/articles/what-is-rest [Accessed 6 Nov. 2018].</p> |
| <p>Safety-critical</p> | <p>Def (Source 1) - “Safety-critical systems, also called life-critical systems, are computer systems that can result in injury or loss of life if it fails or malfunctions. These systems can also cause harm to other equipment or the environment in the event of failure. People use safety-critical systems every day; for example: in phones, in cars, in computers, even traffic lights.”</p> <p>My Def - computer systems of data that can result in injury or loss of life it if fails, malfunctions or is incorrect</p> <p>Usage - All the data used within the CAD system and the soon to be EMIS system is Safety Critical, meaning that if the data is invalid/incorrect then deployments may go to the wrong address or wrong deployments to the wrong location which could cause problems for the people of need in Bangbai.</p> | <p>Source 1 - Sites.google.com. (2018). <i>Safety-Critical Systems - Introduction to CIS</i>. [online] Available at: https://sites.google.com/site/cis115textbook/safety-critical-systems [Accessed 6 Nov. 2018].</p> |
| <p>Scalability / scalable architecture</p> | <p>Def (Source 1) - “A scalable architecture is an architecture that can scale up to meet increased work loads. In other words, if the work load all of a sudden exceeds the capacity of your existing software + hardware combination, you can scale up the system (software +</p> | <p>Source 1 - Tutorials.jenkov.com. (2018). [online] Available at: http://tutorials.jenkov.com/software-architecture/scalable-architectures.html [Accessed 6</p> |

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| | <p>hardware) to meet the increased workload.”</p> <p>My Def - an architecture that can change operability (scale of operation) according to the current and expected workload allowing increased use of hardware and software concurrently.</p> <p>Usage - Bangbai were looking at successful systems, and each of them has the uses of this architecture allowing it to handle the growing population and/or a increase demand suddenly after major events.</p> | Nov. 2018]. |
| Session | <p>Def (Source 1) - “In IT, the word "session" is a reference to a certain time frame for communication between two devices, two systems or two parts of a system.”</p> <p>My Def - refers to the time frame in which two computing devices exchange information over to systems or two parts of it.</p> <p>Usage - This can be used when communicating between the user’s mobile phone and the server/computers that are responsible for automatic deployment and storing data within Bangbai.</p> | <p>Source 1 - Techopedia.com. (2018). <i>What is a Session? - Definition from Techopedia</i>. [online] Available at: https://www.techopedia.com/definition/5392/session-computer-science [Accessed 6 Nov. 2018].</p> |
| Session IP hash | <p>My Def - A load balancing algorithm where, as a request is made a unique hash key generated by the session of a client used to allocate the client to a particular server.</p> <p>Usage - The Bangbai app will allow continual information flow, allowing users to reconnect if the suddenly lose phone signal instead of cycling through the whole app and making a new request. This also prevents problems with load balancing as it dedicated one device to one server meaning the loads can be distributed across Bangbai’s servers.</p> | <p>GitHub. (2018). <i>Question: Transaction ID instead of Timestamp? · Issue #102 · hueniverse/hawk</i>. [online] Available at: https://github.com/hueniverse/hawk/issues/102 [Accessed 6 Nov. 2018].</p> |
| Session management | <p>Def (Source 1) - “Session management refers to the process of securely handling multiple requests to a web-based application or service from a single user or entity.”</p> <p>My Def - is where a system can securely handle multiple requests to a web-based entity from a singular computing device.</p> <p>Usage - Allows data to only be shared between Bangbai’s server and the authenticated user, meaning other people cannot access the</p> | <p>Source 1 - Veracode. (2018). <i>Session management</i>. [online] Available at: https://www.veracode.com/security/session-management [Accessed 6 Nov. 2018].</p> |

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| | critical data they should not have access to. | |
| Socket | <p>Def (Source 1) - "A socket is one endpoint of a two-way communication link between two programs running on the network. A socket is bound to a port number so that the TCP layer can identify the application that data is destined to be sent to."</p> <p>My Def - an endpoint between a two-way communication link between two computing devices or programs on a network, typically a WAN/LAN. A socket has a designated port number so that certain layers, such a TCP can identify the program the data is meant for.</p> <p>Usage - Allows communication, securely, between computer/computer systems meaning the users and operators of the EMIS Bangbai app can simultaneously transmit different types of data.</p> | <p>Source 1 - Docs.oracle.com. (2018). <i>What Is a Socket? (The Java™ Tutorials > Custom Networking > All About Sockets)</i>. [online] Available at: https://docs.oracle.com/javase/tutorial/networking/sockets/definition.html [Accessed 6 Nov. 2018].</p> |
| Source IP hash | <p>Def (Source 1) - "Source IP Hash load balancing uses an algorithm that takes the source and destination IP address of the client and server to generate a unique hash key. This key is used to allocate the client to a particular server. As the key can be regenerated if the session is broken, this method of load balancing can ensure that the client is directed to the same server that it was using previously. This is useful if it's important that a client should connect to a session that is still active after a disconnection and reconnection."</p> <p>My Def - using a load balancing algorithm, Source IP hashing is where the Source IP and Destination IP address of the client and server is used to generate a unique hash key. This key is then bound to the client allowing them direct access to one server. The key is kept unique so sessions can be connected and disconnected easily. Allowing load distribution.</p> <p>Usage - The Bangbai app will allow continual information flow, allowing users to reconnect if they suddenly lose phone signal instead of cycling through the whole app and making a new request. This also prevents problems with load balancing as it dedicated one device to</p> | <p>Source 1 - Load Balancer. (2018). <i>Source IP Hash load balancing</i>. [online] Available at: https://kemptechnologies.com/uk/glossary/source-ip-hash-load-balancing/ [Accessed 6 Nov. 2018].</p> |

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| | <p>one server meaning the loads can be distributed across Bangbai's servers.</p> | |
| <p>Stateful / stateless / maintaining state</p> | <p>Def (Source 1) - <u>Stateless</u> A server processes requests based solely on information provided with each request and does not rely on information from earlier requests. The server does not need to maintain state information between requests. <u>Stateful</u> A server processes requests based on both the information provided with each request and information stored from earlier requests. The server needs to access and maintain state information generated during the processing of an earlier request. My Def (Stateless) - a server process which is independent and based solely on information included with each request; ie. does not rely on earlier requests. Here the server will not maintain state information. My Def (Stateful) - a server process which is dependant on information included with the current request and the previous request. The server then needs to maintain state information from an earlier request. Usage - stateful communication could be used to provide more functionality to the emergency responders; this might include messaging systems and queries which would require stateful communication using either cookies or URL rewriting to maintain the state between requests. Stateless communication is currently being used by ECC workers with the existing CAD system.</p> | <p>Source 1 - Ibm.com. (2018). <i>IBM Knowledge Center</i>. [online] Available at: https://www.ibm.com/support/knowledgecenter/en/SSAW57_8.5.5/com.ibm.websphere.nd.multiplatform.doc/ae/crun_wlm_state.html [Accessed 6 Nov. 2018].</p> |
| <p>TCP/IP sockets</p> | <p>Def (Source 1) - "A socket is one endpoint of a two-way communication link between two programs running on the network. A socket is bound to a port number so that the TCP layer can identify the application that data is destined to be sent to."</p> | <p>Source 1 - Docs.oracle.com. (2018). <i>What Is a Socket? (The Java™ Tutorials > Custom Networking > All About Sockets)</i>. [online] Available at: https://docs.oracle.com/javase/tutorial/network</p> |

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| | <p>My Def - an endpoint between a two-way communication link, between two computing devices or programs on a network, typically a WAN/LAN. A socket has a designated port number so that certain layers, such a TCP/IP can identify the program the data is meant for.</p> <p>Usage - Allows communication, securely, between computer/ computer systems meaning the users and operators of the EMIS Bangbai app can simultaneously transmit different types of data.</p> | <p>king/sockets/definition.html [Accessed 6 Nov. 2018].</p> |
| Transaction processing system (TPS) | <p>Def (Source 1) - “A TPS is a type of information system that collects, stores, modifies and retrieves the data transactions of an enterprise”</p> <p>My Def - SAME A SOURCE DEF AS IT IS PERFECT</p> <p>Usage - used to monitor data exchanges and if there is an error which prevents any part of the operation from completing, all the data will be rolled back to its original state before the operation began.</p> | <p>Source 1 - Kashifulla (2018). <i>Transaction Processing System</i>. [online] Slideshare.net. Available at: https://www.slideshare.net/mohammedkashifulla/tps-final-50461281 [Accessed 6 Nov. 2018].</p> |
| URL rewriting | <p>Def (Source 1) - “URL rewriting is the process of automatically transforming a dynamic URL into a static URL for SEO and search ranking purposes.”</p> <p>My Def - where URLs are converted from dynamic URLs to Static URLs, by optimising indexing and search rankings.</p> <p>Usage - it can provide more functionality to the emergency respondents; this might include messaging systems and queries which would require can be done by URL rewriting to maintain state information ensuring stateful communication.</p> | <p>Source 1 - Digitalmarketing-glossary.com. (2018). <i>What is URL rewriting definition : The digital marketing glossary : illustrated terms and definitions</i>. [online] Available at: http://www.digitalmarketing-glossary.com/What-is-URL-rewriting-definition [Accessed 6 Nov. 2018].</p> |
| Virtual private network (VPN) | <p>My Def - A network that extends the private network using the public infrastructure(the internet). It creates a secure path called the TUNNEL, with its contents hidden from the internet and secured with ENCRYPTION.</p> <p>Usage - Allows users in Bangbai to not share their location and so can access the EMIS via the VPN whilst still concealing their location.</p> | <p>lb.compscihub.net. (2018). [online] Available at: http://ib.compscihub.net/wp-content/uploads/2018/07/3.1.4.pdf [Accessed 6 Nov. 2018].</p> |
| Voice over internet | <p>Def (Source 1) - “Voice-over-Internet Protocol (VoIP) is communications</p> | <p>Source 1 -</p> |

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| <p>protocol (VoIP)</p> | <p>technology that allows users to communicate by audio through an internet connection rather than through an analog connection. Voice-over-Internet Protocol converts the voice signal used in traditional phone technology into a digital signal that travels through the internet instead of through analog telephone lines.”</p> <p>My Def - communication technology that converts analog signal (speech) used in traditional phone technology into a digital signal that travels through the internet instead of through analog telephone lines.</p> <p>Usage - Allowing ECC operators to confirm the validation of their request or report, permitting them to instruct people on what to do during these emergency situations or to provide live feedback/information on what is happening at the scene of the emergency.</p> | <p>Radcliffe, B. (2018). <i>Voice-over-Internet Protocol (VoIP)</i>. [online] Investopedia. Available at: https://www.investopedia.com/terms/v/voiceoverinternet-protocol-voip.asp [Accessed 6 Nov. 2018].</p> |
| <p>Weighted round robin</p> | <p>Def (Source 1) - “This builds on the simple Round Robin load balancing method. In the weighted version each server in the pool is given a static numerical weighting. Servers with higher ratings get more requests sent to them.”</p> <p>My Def - A load balancing algorithm where multiple servers are configured to provide the same services and are ordered using a static numerical weighting. Servers with higher ratings get more requests sent to them.</p> <p>Usage - Rahul said it will be used for “load balancing”; thus improving the distribution of workloads across multiple computing resources such as the computers as the ECC.</p> | <p>Source 1 - Load Balancer. (2018). <i>Load Balancing Algorithms</i>. [online] Available at: https://kemptechnologies.com/uk/load-balancer/load-balancing-algorithms-techniques/ [Accessed 6 Nov. 2018].</p> |
| <p>Zero downtime</p> | <p>Def (Source 1) - “Zero Downtime describes a site without service interruption. To achieve such lofty goals, redundancy becomes a critical requirement at every level of your infrastructure.”</p> <p>My Def - a site or system which is without service interruption that limits critical functionality of its application.</p> <p>Usage - Critical systems, like Bangbai’s, need this as downtime for just</p> | <p>Source 1 - Iheavy.com. (2018). <i>Zero Downtime – What is it and why is it important? – Scalable Startups</i>. [online] Available at: https://www.iheavy.com/2011/06/23/zero-downtime-what-is-it-and-why-is-it-important/ [Accessed 6 Nov. 2018].</p> |

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| | <p>1 hour means they could miss several incidents. This means that it has to be up all the time so all emergency cases can be attempted to be handled with.</p> | |
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