Q: question:seen=client joins bssid?
A: for calculating the location, the client need not join, just the probes alone is sufficient-

Q: Does a device need to be connected to a wireless service or is Location Service based strictly on probes?
A: Probes only-. No need to be connected, just probing prior to getting connected is enough to calculate location-

Q: how often probes are sent by devices like mobiles and how often location is calculated?
A: This depends on device type/manufacture. Some probe more frequently than others.-

Q: If bluetooth is enabled but wi-fi is disabled can I calculate location?
A: this is based off wifi beacons and not bluetooth, so the answer is no-

Q: They would need to associate to SSID before receiving messages though right?
A: Not neccessarily - if using a mobile application - messages can be sent over 3g\4g - and still use the wifi just to get location.-

Q: does a wifi device need to support 802.11u for advertisement/welcome message to work?
A: not necessarily, hold onto your question, we will answer it in the presentation later-. If using CMX Dashboard engage, no 802.11u is required. Just need a browser.-

Q: Could this be used to push notifications to the wi-fi device? (Ads from store you are close to)
A: yes-

Q: how does it work with RFID tags?
A: If the RFIP tag probes, is connected to the network, we can calculate analytics for this device.-

Q: This probing feature - does this occur even if network notification on the device is turned off?
A: yes, your client device is always probing and sending info out to the AP/s, even if it is not connecting.-
Q: Any planned iBeacon integration?
A: we are looking into it-

Q: is accuracy impacted by the orientation of an Access point? ceiling mounted vs wall mounted?
A: several factors impact the location accuracy, RF design, overlapping, signal strengths etc..the 5-7 mtr is for typical office layouts-

Q: how do i "force" the wireless devices to associate with my bssid and thus be able to send them material e.g welcome message/coupons etc.
A: today you have manually join the SSID. in future, you could use hotspot 2.0.-

Q: Can this solution track individual users/clients so I can locate an employee on a map?
A: The technology enables this solution - You can track individual devices on Prime Infrastructure, or on 3rd party applications that leverage the MSE to display this type of data-

Q: So, for example, ekahau tags would be supported?
A: Ekahau, Centrak and Aeroscout tags are supported-

Q: in a very large high ceiling scenario would be of value to calibrate the rf location or would it still be within the lower range of accuracy?
A: RF calibration would help, high density deployments typically help with location accuracy-

Q: Great, though we still have some questions (is this public?)
A: it is public - you can ping me at evram@cisco.com-

Q: Do all devices beacon similarly? in particular Apple devices? if not, then do all clients provide similar analytical data?
A: probes vary based on vendor, battery levels and other factors-

Q: would there ever be any big data analytics integrated into CMX?
A: Cisco Advanced Services are integrating CMX data with other data sources to create a big data solution-

Q: Not asking about "connecting" - asking about my mobile phone's ability to display available wireless networks in range. If I turn that off, does the 'probing' still occur?
A: if WiFi is off, no probing takes place.-
Q: Evyatar, when you say "Aeroscout is supported" does this mean you don't need a Aeroscout server to have those RFID active and being tracked by MSE, or th RFID need the Aeroscout server to be "active"?

A: Supported means that the MSE can track Aeroscout RFID tags - you would still need the Aeroscout mobile view UI to track those tags and get the advanced functionality such as temp monitoring.

Q: is there a plan to allow the reports to be exported into excel?

A: yes - next release.-

Q: sir, does it inherit properties like handoff & hand on as in GSM architecture?

Q: Is CMX Analytics part of the MSE or is it a separate system?

A: part of MSE.

Q: Is CMX analytics an application to be pre installed in my mobile smartphone before using CMX feature in wifi beacon?

A: no, CMX analytics is a capability of the Mobility Services Engine (MSE).

Q: Does CMX affect deeply MSE CPU?

A: location analysis is compute intensive. Follow recommendation for cpu, memory.

Q: so, does it depend on the RFID brand?

Q: Not turning Wi-Fi off - just the notification feature of available networks. Guess I could check with manufacturer.

Q: for what we have seen so far, is it out of the box components or 3rd party integrations?

A: out of the box...

Q: Is this feature is implemented. I'm in India how can I implement CMX with my smartphone?

A: follow the presentation, remember the topology and go through the collateral on designing and implementing location analytics.

Q: Can we send welcome messages to devices that have never registered in our network, but are sending probe messages??

A: Not today, this is something we are working on.
Q: Minimum sw version of WLC PRime?

Q: Is CMX an additional cost over the MSE?

A: CMX is a license on the MSE - you must purchase the hardware or vMSE and then the CMX license that runs on the MSE-. MSE has 2 location services licenses - Base license and CMX license - CMX analytics requires the CMX license-

Q: What are the requirements for the AP’s to be compatible with this system?

A: all Cisco 802.11n APs are supported-

Q: is there a cisco development app for testing indoor navigation?

A: we have partnership with app developers such as Phunware-

Q: Do you consider this as espionage?

A: For analytics we only collect aggregate MAC address info. So no individual user info is collected. We have no idea who the end user is.-

Q: location calculation is based on 2D or 3D?

A: both options are available-

Q: is http://172.19.30.220:8080/ui/ the right location for the latest demo system on CMX?

Q: do you have any tools to maintain an inventory of devices or assets and related mac address?

A: MSE database has it, you could periodically export it out and maintain an inventory-

Q: will there be RBAC for the API to protect privacy?

A: API implies that another application was written by a 3rd party - that developer can add RBAC as required-

Q: Can I use the API with Prime without CMX?

A: MSE is needed for calculating the location and you could make an API query using REST. -

Q: iOS7 restricts access to MAC address. Is there a workaround for REST to work with iOS7?

A: we have workarounds for ios 7, work in progress-
Q: Are non-802.11n supported?

Q: Is the license cost based on tracked clients or one global license?
A: licensing is based on AP count-

Q: are there any REST general templates publicly available?
A: further in the presentation Darryl will show an example of a sample REST script- it is quite easy-. This should be available in the API integration doc available on CCO-

Q: How is the notification delivered to the requester, does the requester have to continue querying the MSE

Q: Recognizing that Advanced licenses are required on the MSE to support the CMX application, can both Advanced and Base licenses coexist on the same MSE or will all
A: CMX (Advanced) licenses include a base license within them, so you would only need either Base or CMX licenses-

Q: How do you configure the map you show before? How you know the real size?
A: you need to load the map in Prime-

Q: CMX tracks the location of the clients n wat r all the features does it offers to the connected clients based on location?
A: Really depends on how you or an ecosystem partner use the API data - can do apps with maps, zone-based notifications, browser-based banners, etc - tons of use cases-

Q: The cost of CMX license?
A: we currently have promotion pricing - ~$100 per AP-

Q: with 7.6, can you schedule automatic reports to be sent to business executives in a company?
A: no - that is an upcoming feature-

Q: What version of the MSE is required to use CMX?
A: Location has been available for a while now, 7.4, 7.5 and future releases like the imminent 7.6 MSE release all support location-
Q: Is this application available as a sample app to assist in development?
A: Standalone is enough. The snippet shown in the presentation is an example. you can reach out to your local Cisco account team offline-

Q: Based on your experience and installations does a client like a mall need additional 3rd party software to be added to CMX to do the statistics and etc or it's enough to stand alone?
A: standalone suffices-

Q: any partners(emear) training available?
A: Yes, ping me offline and I can get this for you. zahshivj@cisco.com-

Q: Does MAPS utilise smart phone hardware features such as accelerometers?
A: Some mobile app solutions leverage accelerometers, I believe that that the Cisco maps app does not.

Q: Is there a formula/floor plan for how many APs would be needed in an area, or what the recommended distance between APs would be?
A: 2500 sq ft per AP-

Q: It is possible to use another kind of RF signal like microphones, touchscreen, etc? Have you ever test this kind of conditions?
A: not yet, but we are always exploring innovative ways to improve and enhance our solution-

Q: as soon as a guest is connected to our cmx/mse enable ssid, can we push promotional material? is it through web redirection?any app is required on the device to receive the messages? thanks
A: yes, through push notification this is possible-

Q: How do you get the data to the business decision makers? Is there a multi-level-admin type login that would allow someone to see their data without making changes?
A: Role based access is going to be a part of our next release-

Q: Since there can be multiple MSE is there only 1 system designated as the RESTapi server?
A: MSE can be deployed as a cluster-

Q: Which MSE licenses are needed?
A: there is a base location license (for the API info), or the CMX license, which include base location and plus the CMX features such as analytics and connect-
Q: How many APs is effective in an area?
A: follow the cisco recommended design and implementation suggestions-

Q: Can I use 1242 APs?

Q: will prime 2.1 be supported with mse 7.6
A: yes-

Q: does it work with flexconnect?
A: yes-

Q: can we offer thie mse/cmx as a multi tenant solution thius handling different companies etc?
A: does not support multi-tenancy yet, but the mse is available in a virtual form factor so you can spawn multiple instances of the MSE for supporting different tenants-

Q: What are the future enhancements of MSE?
A: numerous to enumerate here, but shortly improving location accuracy is one of them-

Q: How many Sq Ft does 1 AP cover again?
A: 2500 sq ft-

Q: which router will be recommended for browser engage redirects
A: Anything that supports PBR or L4 redirection-

Q: What about MSAP? Can you name smartphones that REALLY support the protocol?
A: We are working with a few major vendors. Info to be released shortly.-

Q: can I intall both FlexConnect and monitor APs to incr ease precision?

Q: with a basic license would the API provide multiple client locations on demand?
A: yes-

Q: "For analytics we only collect aggregate MAC address info...no individual user info is collected. We have no idea who the end user is." So analytics is anonymous but via the API, identity is avail (i.e. the Cisco employee conference room/nav scenario?)
A: The database has the individual MAC addresses - however there is no way to see data on individual devices via the CMX analytics UI. The API can access individual MAC addresses.

Q: how is the MSE connected to the CMX or should I say how do they interact?
A: CMX is the marketing term, MSE is the product - you need MSE for CMX. CMX is a service that runs on the MSE.

Q: is there any integration for different site survey vendor tool

Q: Can you identify what kind of devices you have - if it's a phone, tablet, PCs etc?
A: Yes with browser engage.

Q: will the CMX billboard work also for traffic from LAN? (providing we cannot "locate" thru wired connections)
A: If you choose to redirect the wired LAN to the proxy then yes it is possible to see the browser engage work for wired clients as well.

Q: is guest connect a part of BBX?
A: It uses a common dashboard for its UI, however you can run CMX Connect without turning on BBX.

Q: What is the minimum WLC code version? What is recommended?
A: Anything > 7.2.

Q: iOS6/iOS7 optimized for battery life; send very few probe requests after initial broadcast. Any suggestions on optimizing iOS accuracy wrt MSE/AP tuning?
A: We have partners that are working on third party Apps that would increase probe freq. Other workaround is to stay on the WiFi setting page on a iOS device.

Q: does cmx gather data from AP's with multiple ssid's
A: Yes.

Q: We tested location services and found "uncertainty of movement" is real issue. We observed that typical Android device (SGS III, S Note II etc.) send probes only about once a minute and rotates SSIDs of predefined hidden networks and null SSID in probes.
A: Yes, different endpoints have different probe rates and that influences the location greatly..both the accuracy and the currency.
Q: Are any plans to have TDOA (Time Domain of Arrivals) APs in order to improve location in outdoors?
A: we are evaluating several options, stay tuned for more-

Q: Hence position of device is updated once a minute as rogue client and once per several minutes as own client. But during minute man can walk up to 100m it means he/she is in really different position than it is presented. We also found that devices are not

Q: CCX compatible or even they states they are CCX they ignore CCX location requests (requests to send probes at defined interval) if it is turned on the controller. It makes use location services really hard for navigation. Are there any plans to use data

Q: frames for location determination or other feasible techniques to have location data more often current hence more accurate and useful?
A: There are several location innovations coming down the pipeline. Stay tuned!

Q: do you have any upgrade path for clients who bought context aware licenses (e.g L-CAS-12KC) to CMX licenses?
A: we have reduced the price of the CMX license to make the migration easier.

Q: Aand again how may clients can be connected to single AP which will be more effective in a same location ?

Q: is the ncs prime required in order to enable mse/cmx?
A: yes-

Q: Is it recommended the calibration in order to implement the CMX Analytics ?
A: yes-. currently it is only wifi, stay tuned for more-

Q: Is WiFi the only wireless technology used to track devices by CMX. In other words … Are iBeacon, RFID, etc. supported?

Q: Are associated device located with more accuracy rather than unassociated ones?
A: no - same accuracy-

Q: Not a question but ... My company is currently involved with a retail customer and we are very excited with our Proof of concept so far - I would like to pass on our appreciation of the outstanding support from you guys.
A: thank you-
Q: If CMX FB connector a "package" included in MSE or something to be installed on or to be installed on a separate server?
A: it is available as a separate ova if you buy the CMX license-

Q: What are the security measures which you have implemented over MSE ? Any specific algorithms ?
A: SSL between WLC and MSE-

Q: how does the 3g push interact with conten services appliactions

Q: Thanks Natty, but can I install that ova in the MSE itself?
A: yes, if you have enough cpu memory resources-

Q: Clarification To MaxK: when you upgrade to newer MSE code, MSE CAS licenses will be auto-converted to AP licenses. This is separate from MSE CMX licensing.

Q: I am interested in CCX clients and if they can have better precision

Q: Is MSE a kind of wifi router ?