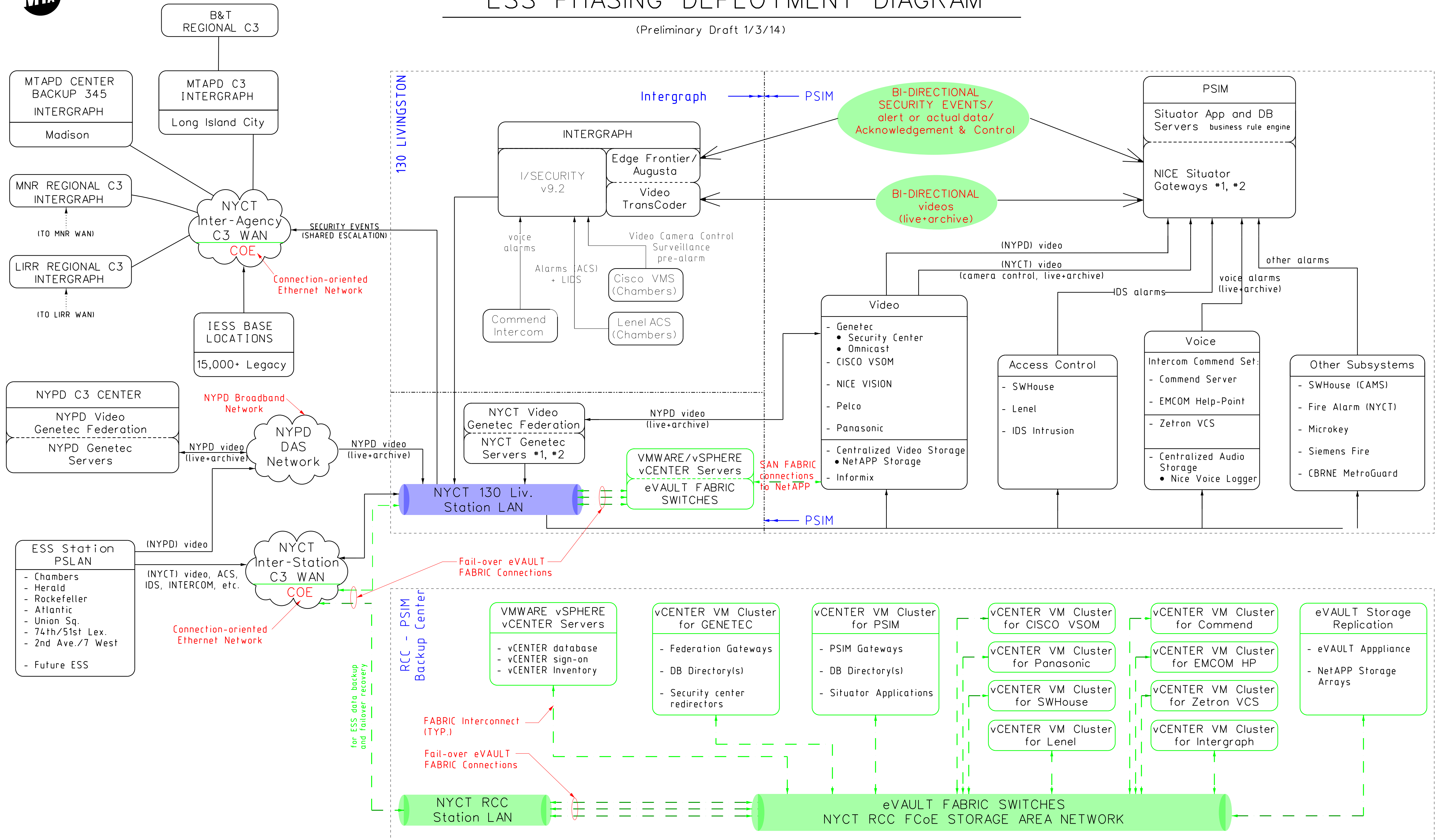




ESS PHASING DEPLOYMENT DIAGRAM

(Preliminary Draft 1/3/14)



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LEGEND:

Existing completed

Future connections

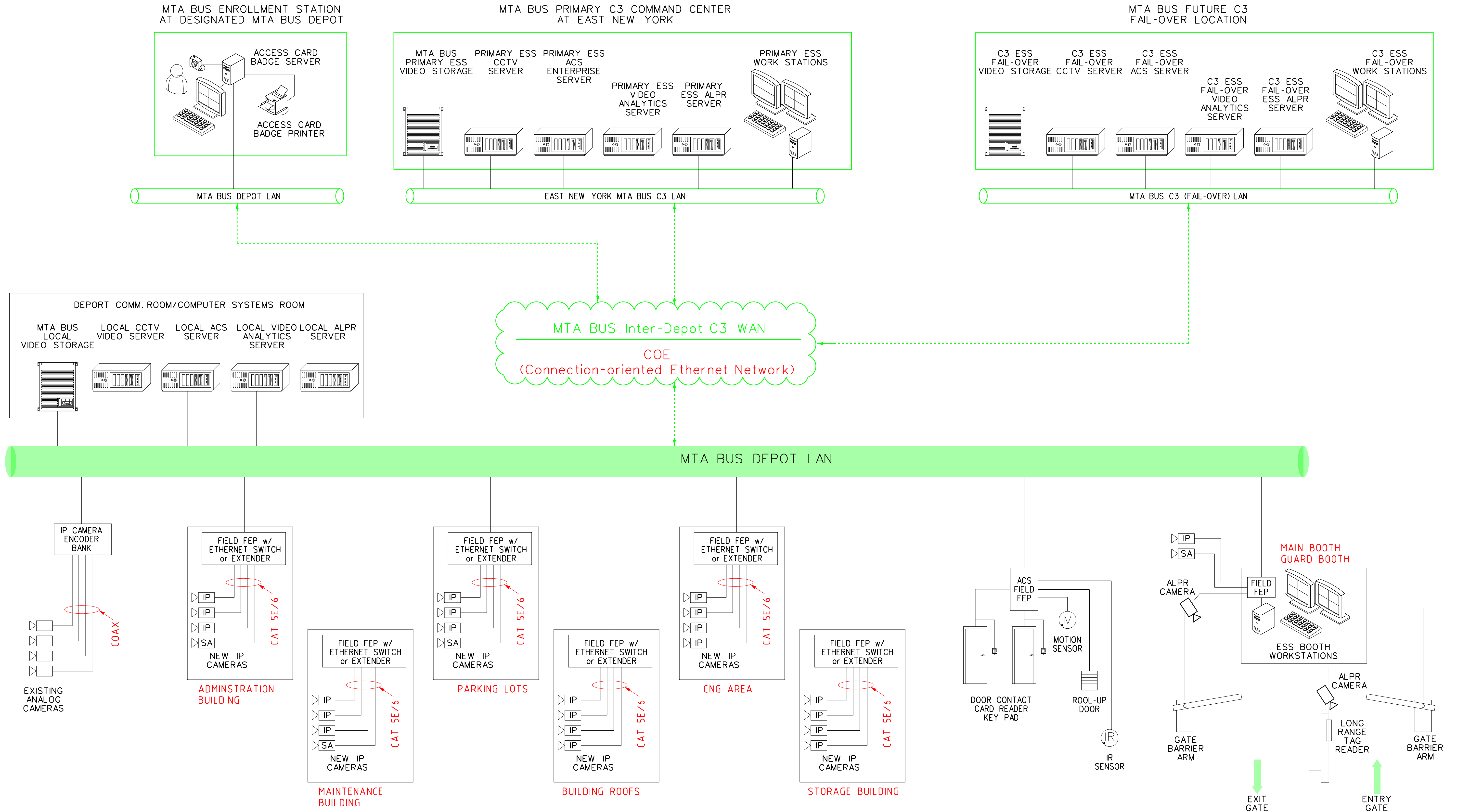
Fail-over eVAULT FABRIC connections

NOTES:

1. For Fail-over vVAULT FABRIC connections only. Security event shall be rerouted to RCC upon any failure detected at 130 Livingston PSIM or Intergraph servers.



MTA BUS ESS OVERVIEW DIAGRAM (Preliminary Draft 1/9/14)

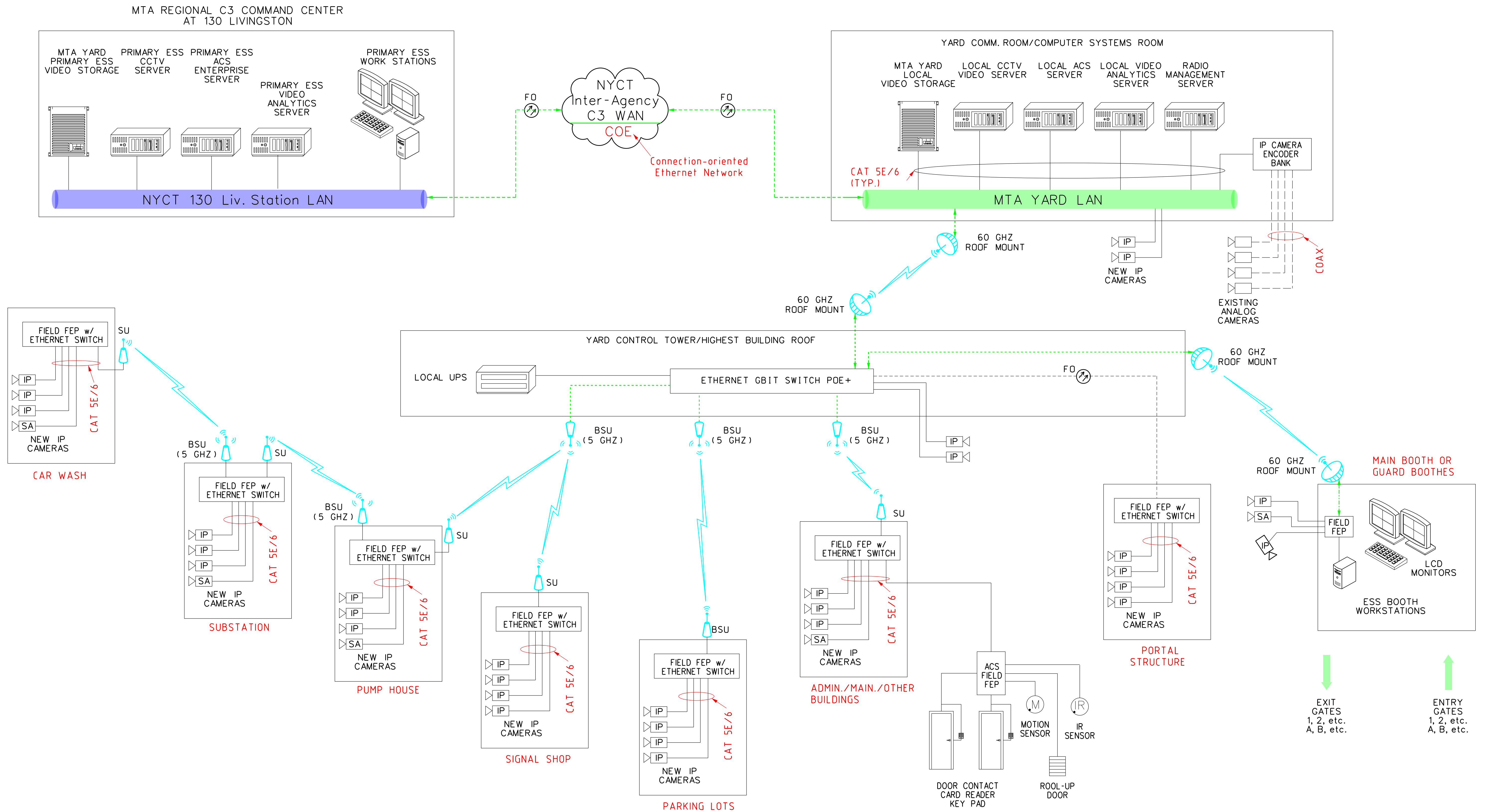


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MTA YARD ESS OVERVIEW DIAGRAM (Preliminary Draft 1/9/14)

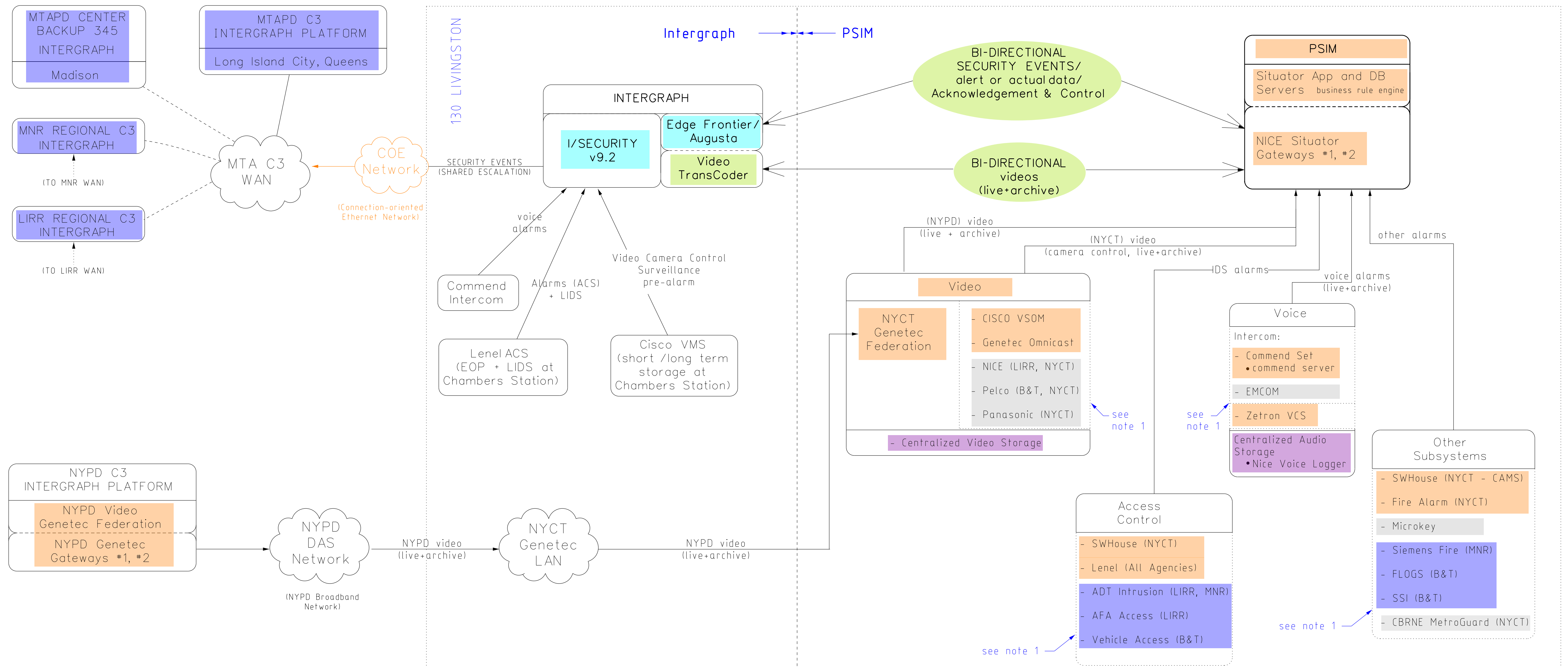




PSIM Site Acceptance Tests Phases

(Assume all SAT will be done at RCC)

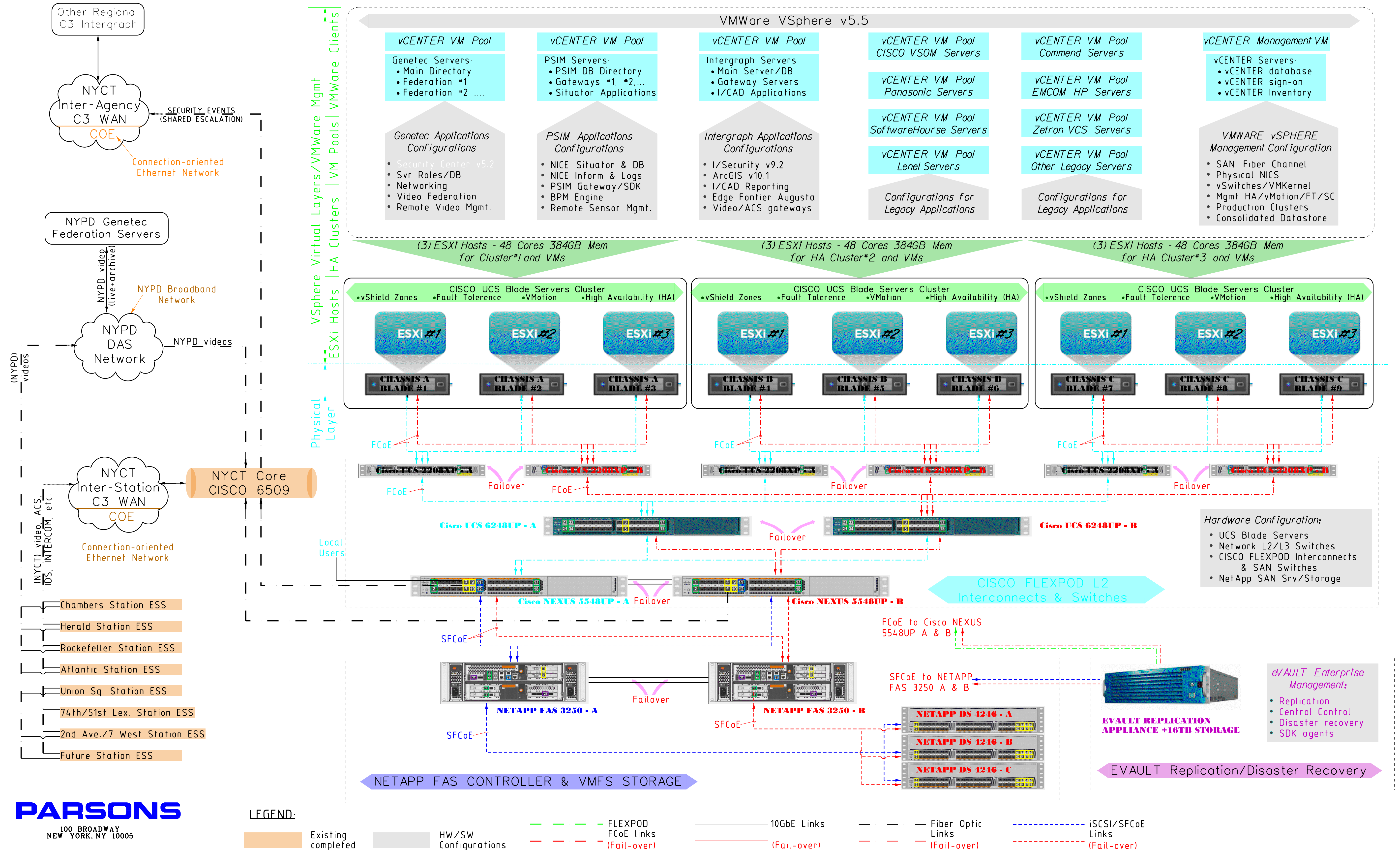
(Preliminary Draft Last Updated: 1/16/13)





ESS RESILLIENCE VMWARE vSPHERE v5.5 ARCHITECTURE

(Preliminary Draft 3/11/14)



NICE Situator Interface with 3D LiDAR Data Design Concept – ArcGIS (Option #1: Dynamic Mapping)

DRAFT 1/6/14

Dataflow

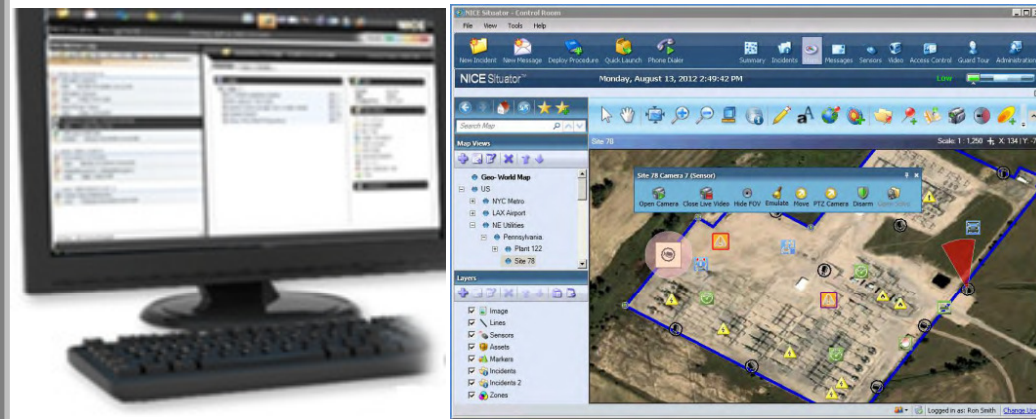
PHYSICAL Architecture

Cons (-):

- Extensive labor to set up ArcGIS/SQL Server/Clients
- Networking more complicated to support auto. SQL Sync. for dynamic map updates
- Great geomap details, difficult to post-process big cloud files (>2GB) with ArcGIS LAS Tools

Pros (+):

- + National GIS standard and SQL Server/Client Models
- + National standard for Metadata & Geospatial Data
- + National standard for GPS data
- + Built-in GIS Engine supports dynamic map processing, integration, update, and management by PSIM Nice Situator



PSIM Situator Map Tools:

- 3D Map Operations
- 3D Map View

Import ArcGIS Maps

3D Esri ArcGIS Layers in .shp files

ArcGIS v10.1 GUI for

- 3D Geocoding
- GIS Map Views

ArcGIS v10.1 GUI:

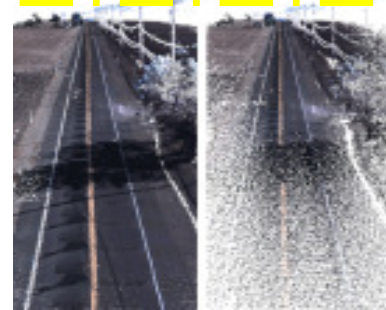
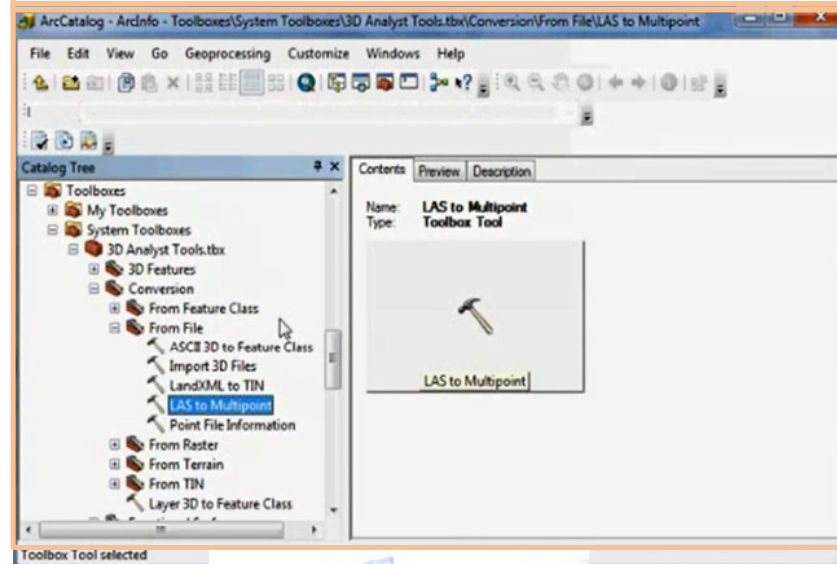
- Import .LAS files
- Geoprocessing

Import LiDAR

LiDAR 3D Point Cloud in .LAS files
standard binary format for data exchange

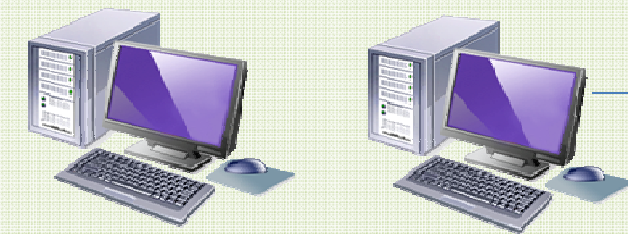
Viewing lidar data as a LAS dataset

- In 2D (ArcMap) or 3D (ArcScene)
- As points
 - Symbolize using LAS attributes
 - Class codes, RGB, scan angle, etc.
- As a surface
 - Symbolize and filter using surface options
 - Bare earth, first return, etc.
- Control the number of points shown
 - Full resolution in a local area



NICE Situator Workstations

NICE Situator Application Servers



ArcGIS & 3D Engine

NICE Situator Licence for Add-ons:
❖ ESRI-ArcGIS Map Provider
❖ 3D Map Provider

PSIM

.shp files

ArcGIS Workstations

ArcGIS Servers

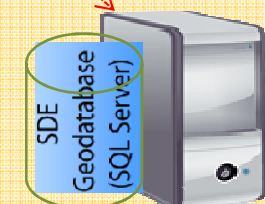
ArcGIS



ArcGIS Workstation License:
❖ AGSADMIN
❖ AGSUSERS
❖ ArcGIS Desktop
❖ ArcCatalog (LAN Access)

ArcCatalog

ArcGIS Server License:
❖ Server Manager (SOM & SOCs)
❖ GIS Explorer Maps
❖ 3D Analyst Extension (.LAS)
❖ SQL Server/Clients



.LAS files

LiDAR Survey Data from Subway Stations

Subway 130 LIV.
Stations Plaza

130 LIV NYCT LAN

PARSONS

100 Broadway
New York, NY 10005