LUCIAD PRESENTATION
SUPPORT FOR MARITIME ANALYSIS TOOLS
7.9.17
FRONTEX
LUCIAD

LUCIAD IN ACTION

- → Vessel Traffic and Coastguard Systems
- → Chart Management & Distribution
- → Training & Simulation
- → Inland Waterway Management
- → Port Security
- → Strategic C2 / Planning
- → Combat Management & Real-time Ops
- → ISR
- → Onboard systems
- → Fisheries surveillance
- → Pollution tracking

LUCIAD

SOME CUSTOMERS

- EMSA
- LEONARDO
- INDRA
- GMV
- THALES UK, FRANCE, PORTUGAL
- LOCKHEED MARTIN
- SOPRA STERIA
- NATO (in over a dozen systems, air, land, and sea)
- SP MoD, BEL MoD, FR MoD…
- AIRBUS (SEVERAL OEM PRODUCTS)
- BAE
- NAVANTIA

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OUR APPROACH – YOUR BENEFIT

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DIRECT CONNECT TO ANY DATA SOURCE

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WHEN YOUR MISSION IS CRITICAL: PERFORMANCE & PRECISION

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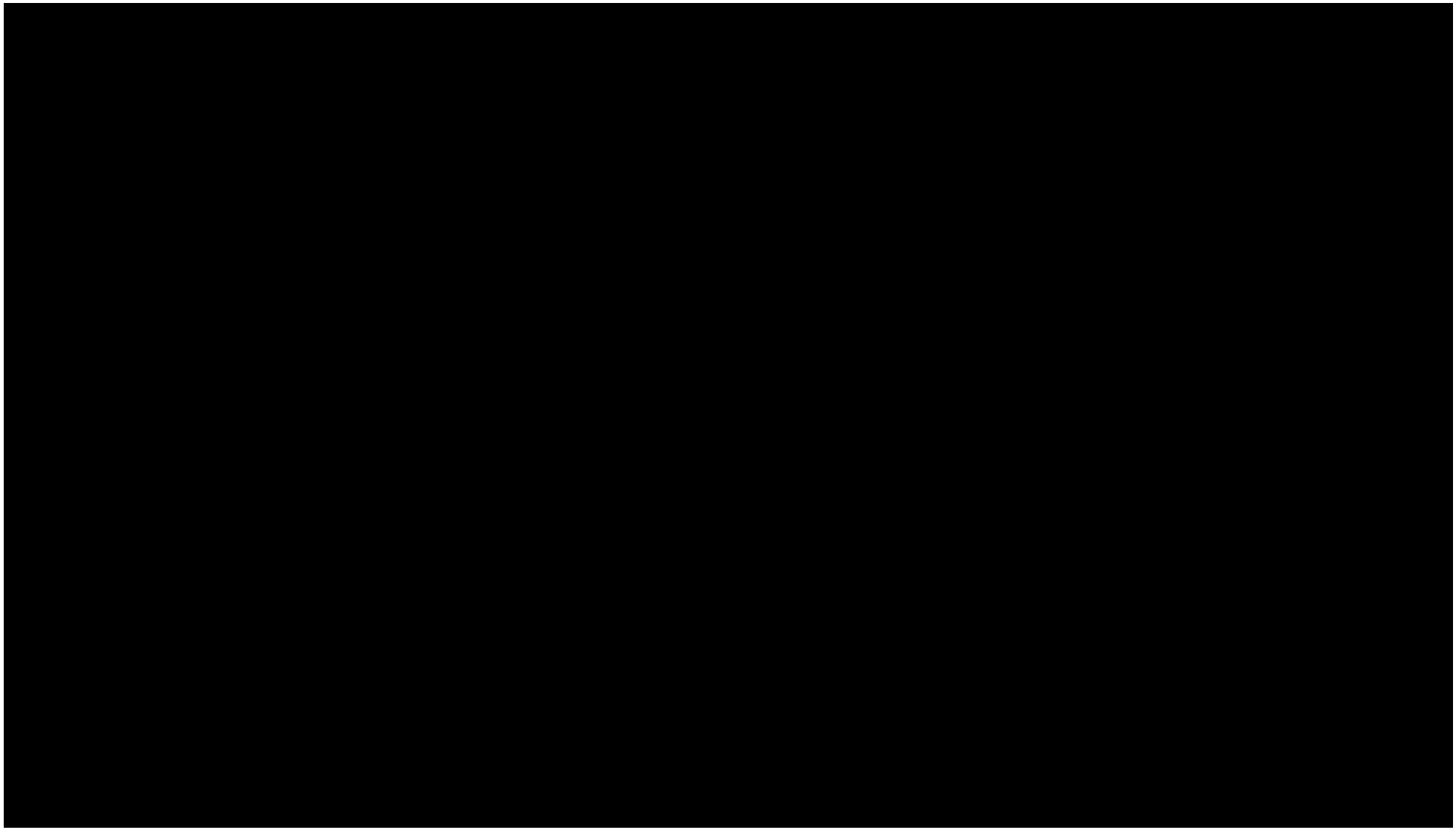

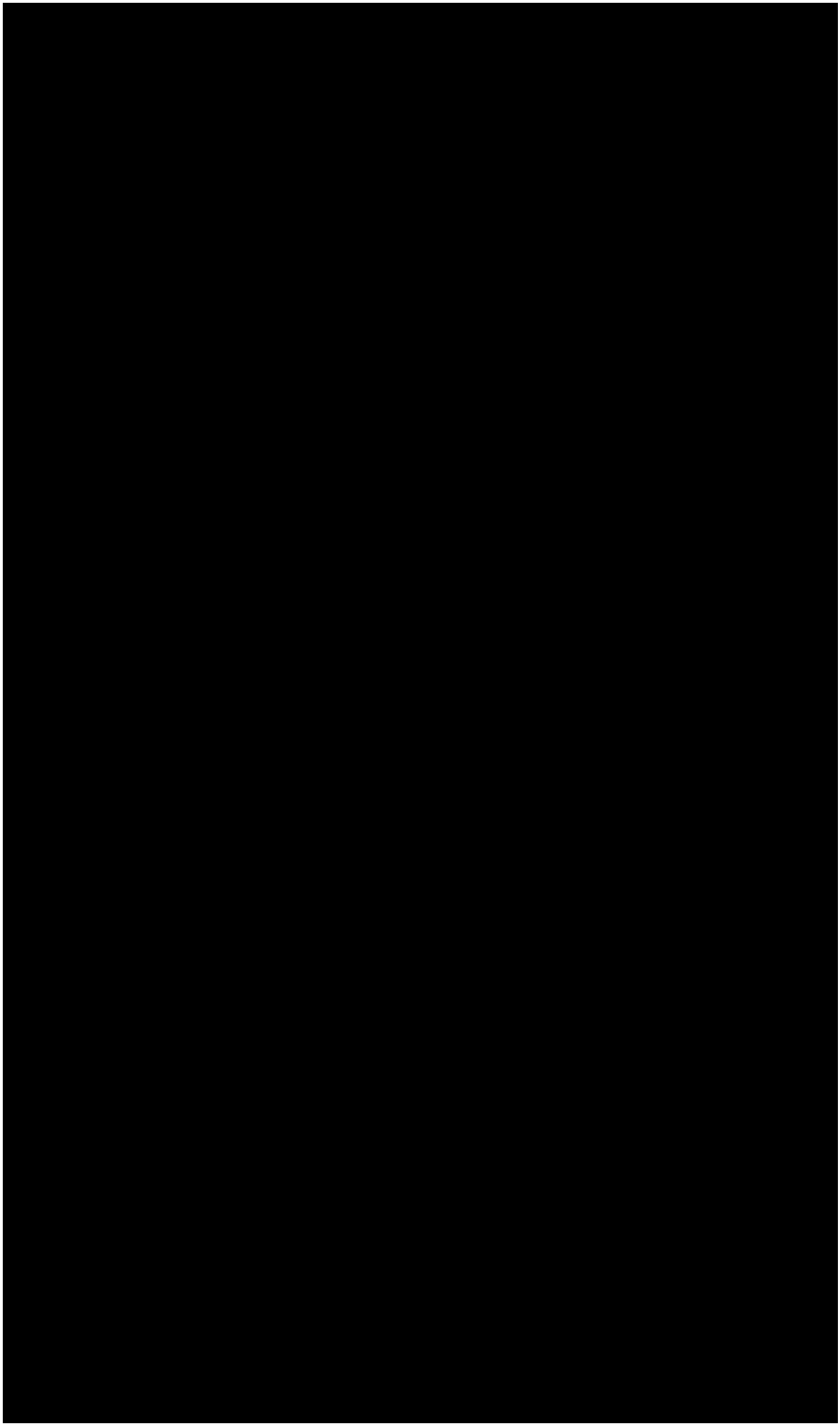

ANALYSIS CAPACITY

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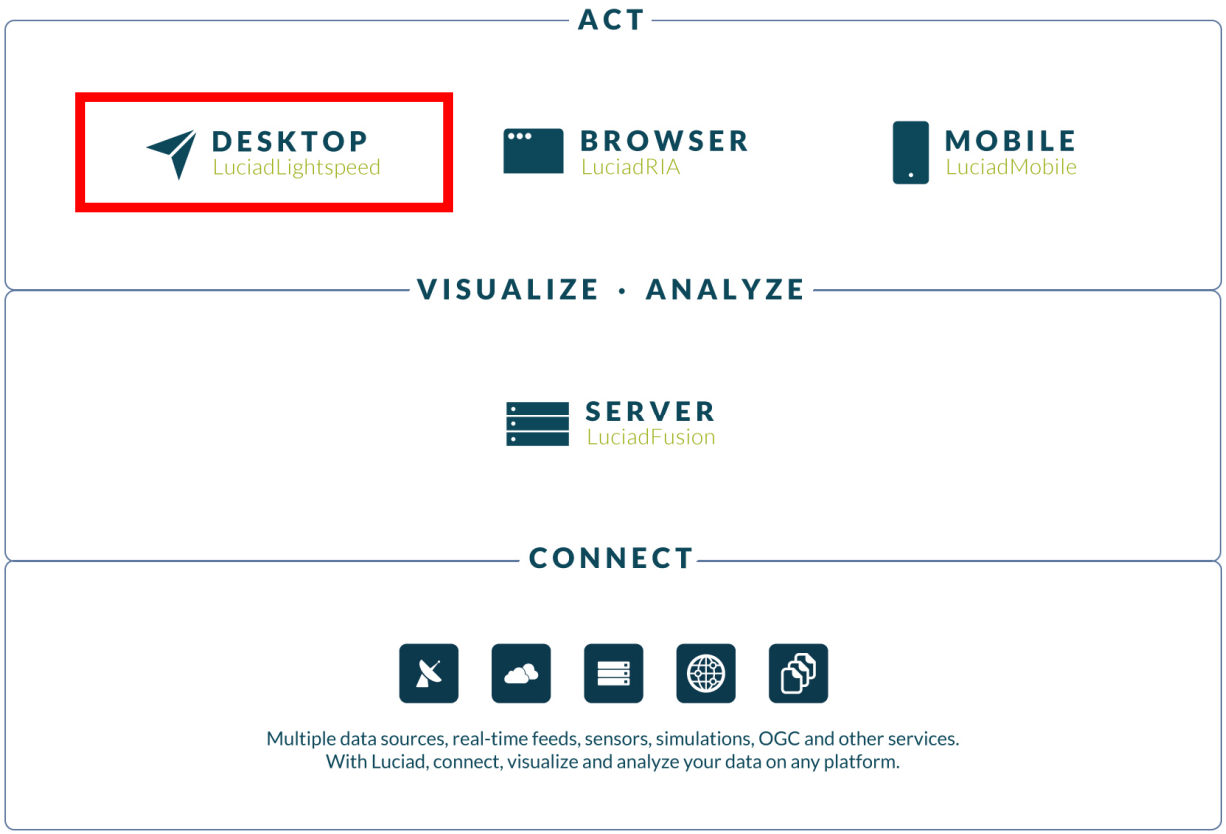

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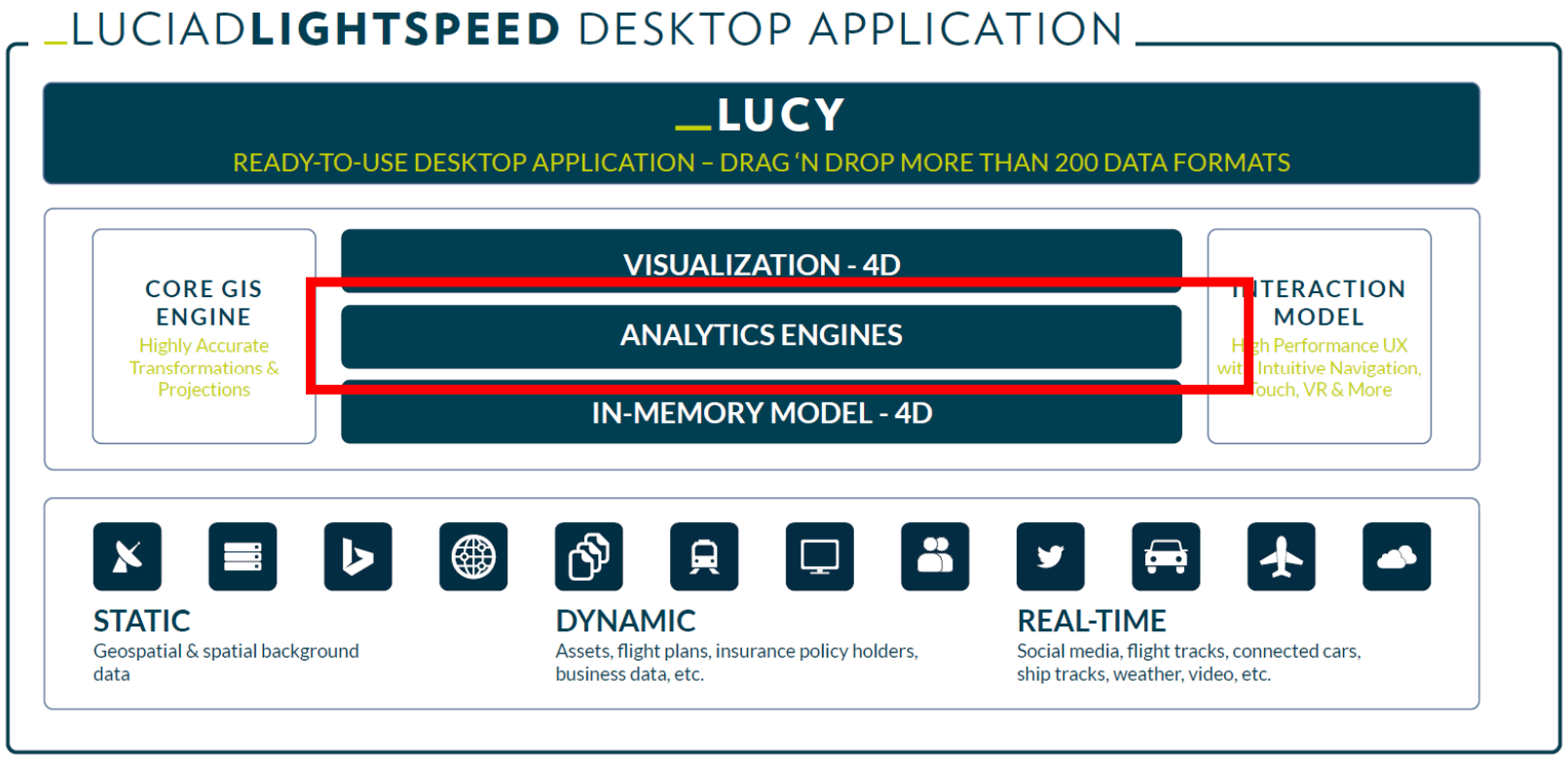
DESKTOP - ARCHITECTURE



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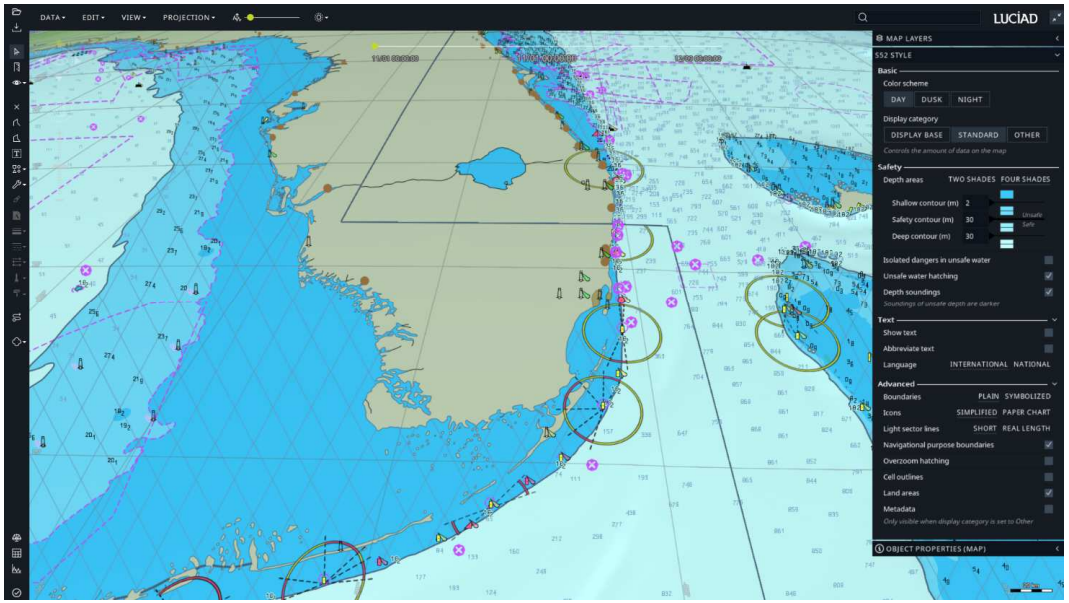
MARITIME STANDARDS

- Flexible solution for creating IHO certified systems
- Following the latest specifications
  - S-57 data format
  - S-52 symbology
  - S-63 decryption
  - S-64 and IEC61174 compliant
  - Additional Military Layers (UKHO symbology)
- Included S-52 style selection UI
  - For direct connection to ECDIS data
  - When connecting from LuciadFusion
- Fast SENC format for unparalleled ECDIS performance



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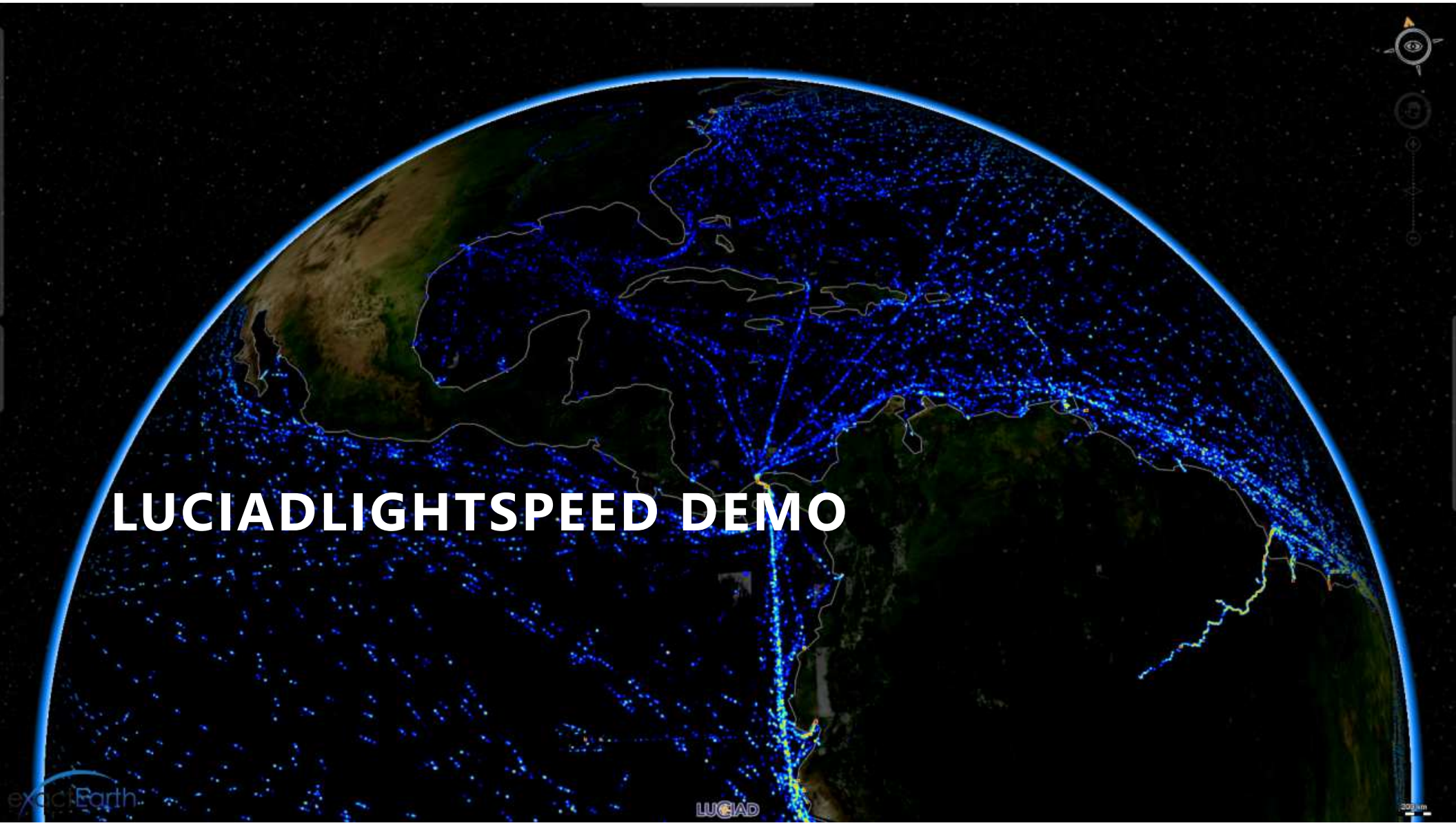
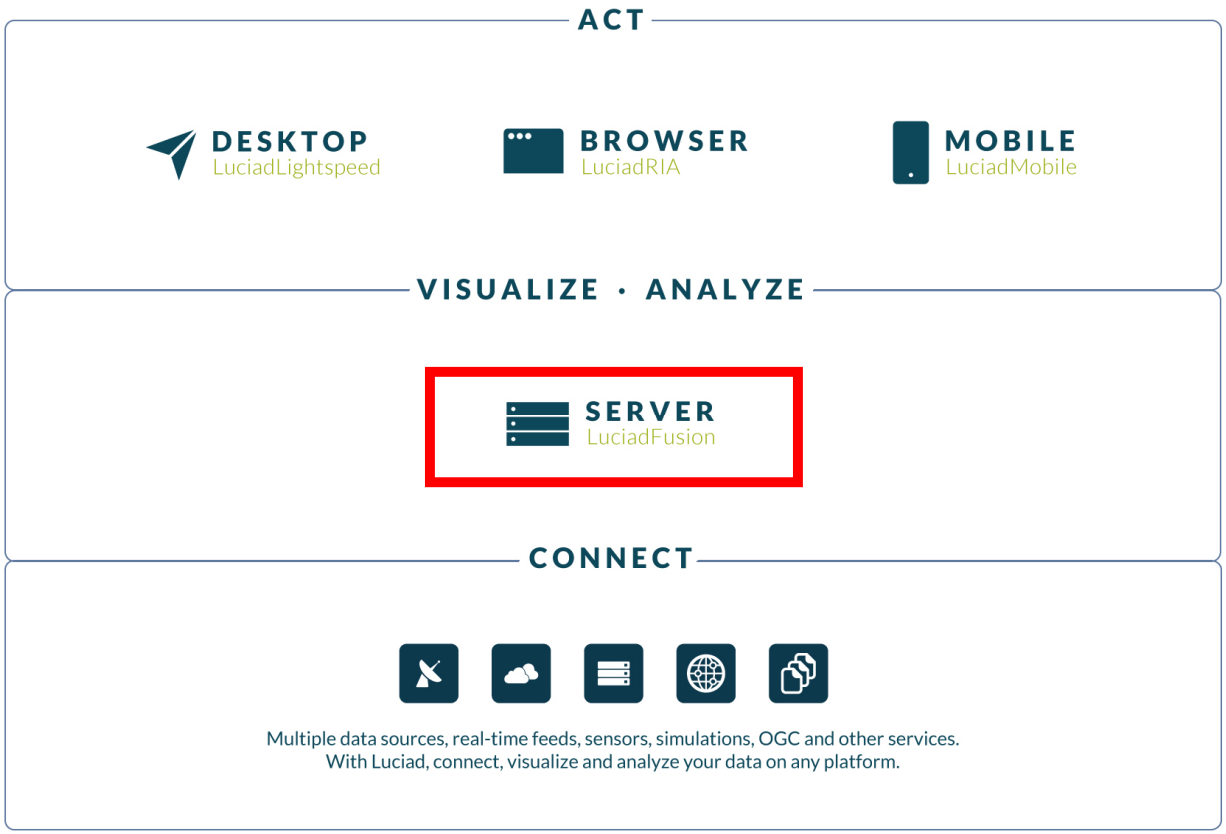

LUCIADLIGHTSPEED DEMO
exactEarth
LUCIAD

LUCIAD SOLUTIONS



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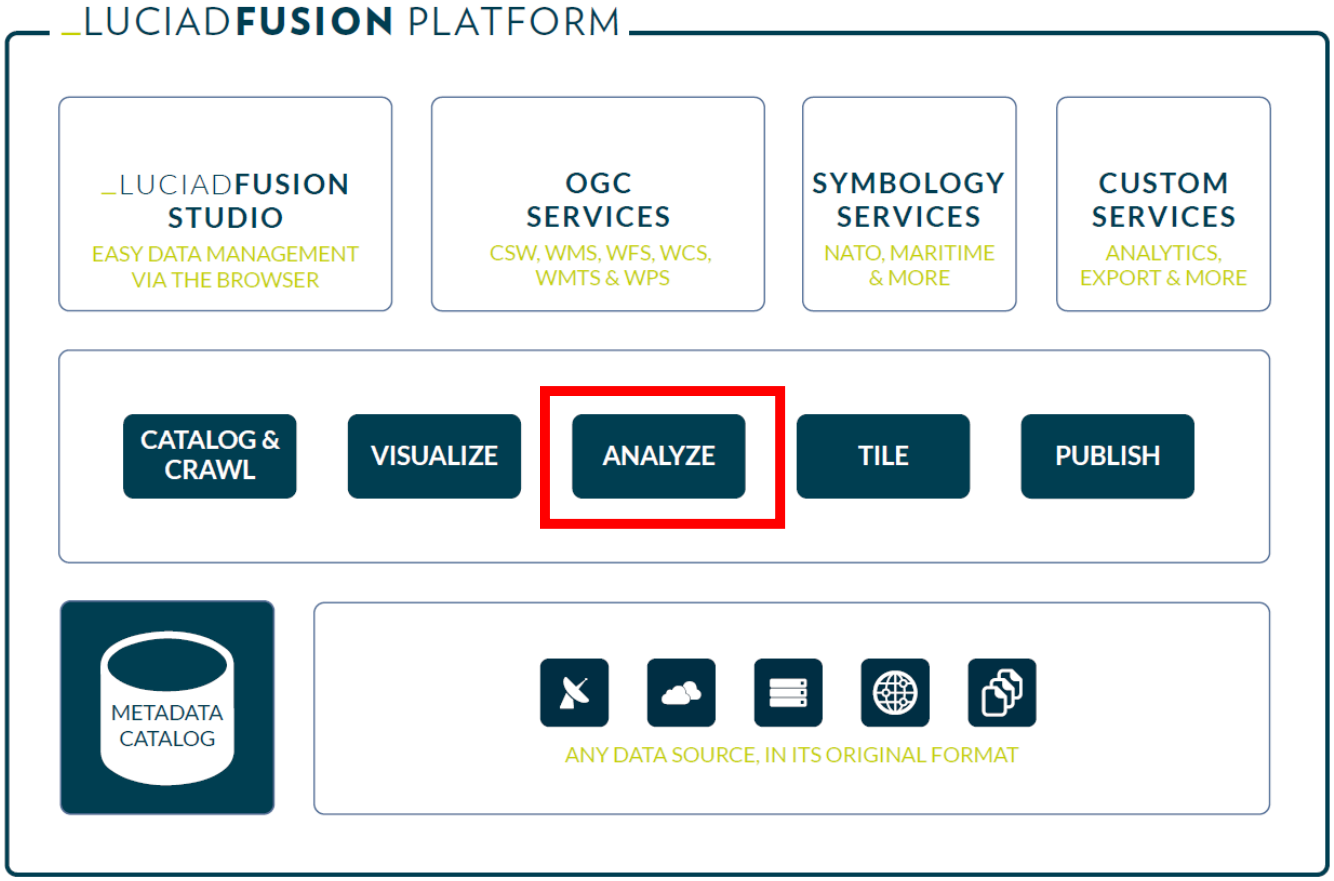
SERVER - ARCHITECTURE



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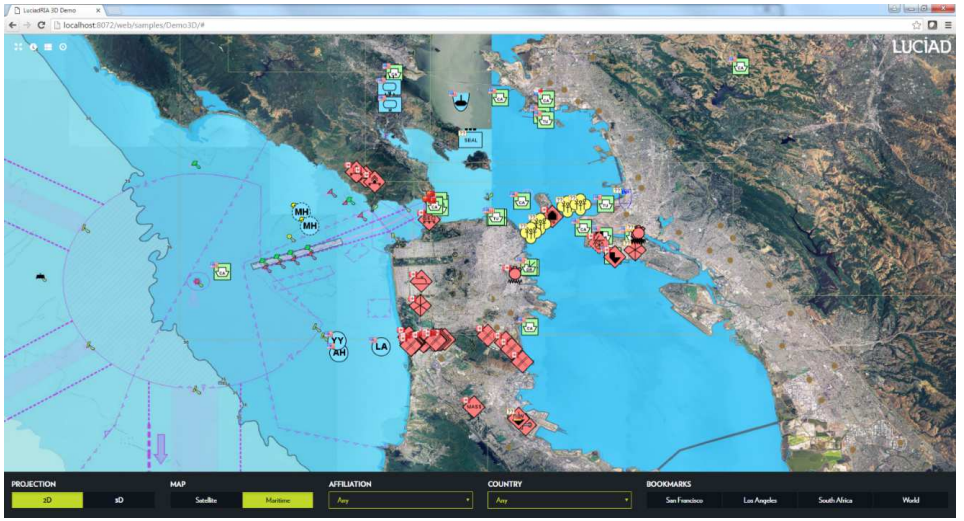
SYMBOLOGY SERVICES

- Full set of defense symbology
  - APP-6A/B/C, MS2525B/C, TTA-106*
- Serve ECDIS charts using S-52 symbology**
- Use symbols on map, or in UI elements
- Build your custom symbology service



*Requires Defense Symbology Option
** Requires Maritime Standards Option

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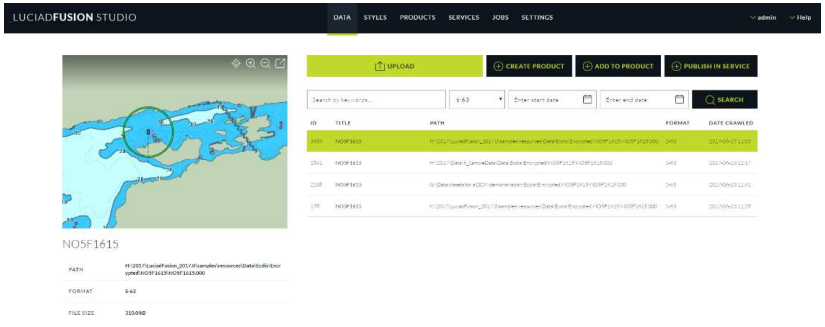
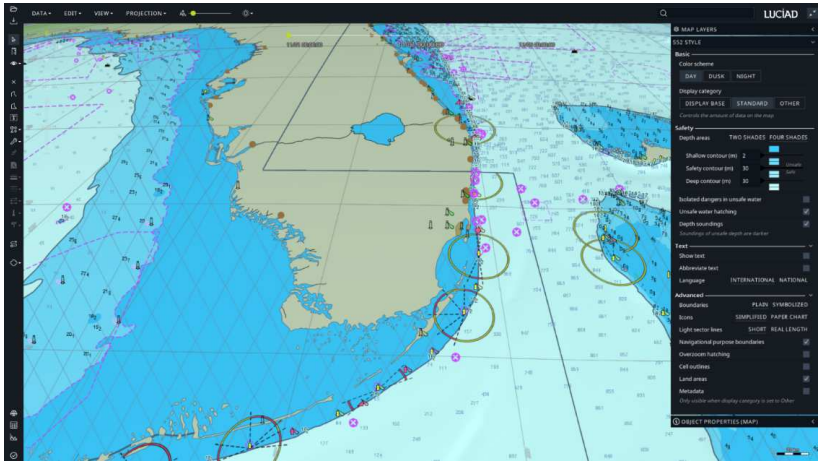
MARITIME STANDARDS

- Flexible solution for creating IHO certified systems
- Following the latest specifications
  - S-57 data format
  - S-52 symbology
  - S-63 decryption
  - S-64 and IEC61174 compliant
  - Additional Military Layers (UKHO symbology)
- Serve on-the-fly or fuse/tile/multi-level
- Supports on-the-fly S-52 styling through OGC WMS/WMTS
- Fast SENC format for unparalleled ECDIS performance





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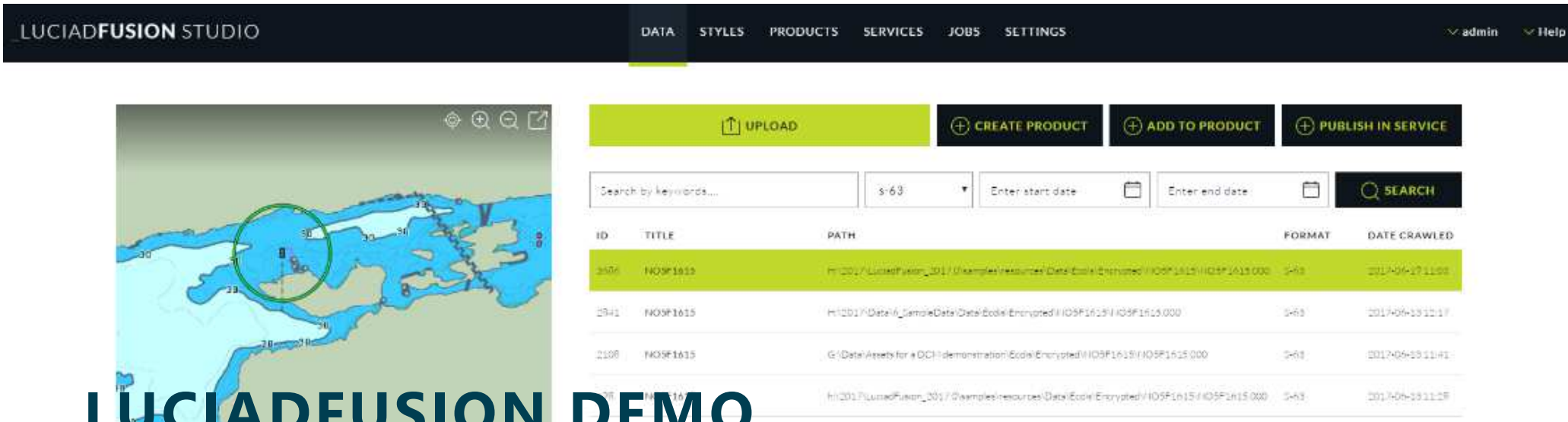

LUCIADFUSION DEMO

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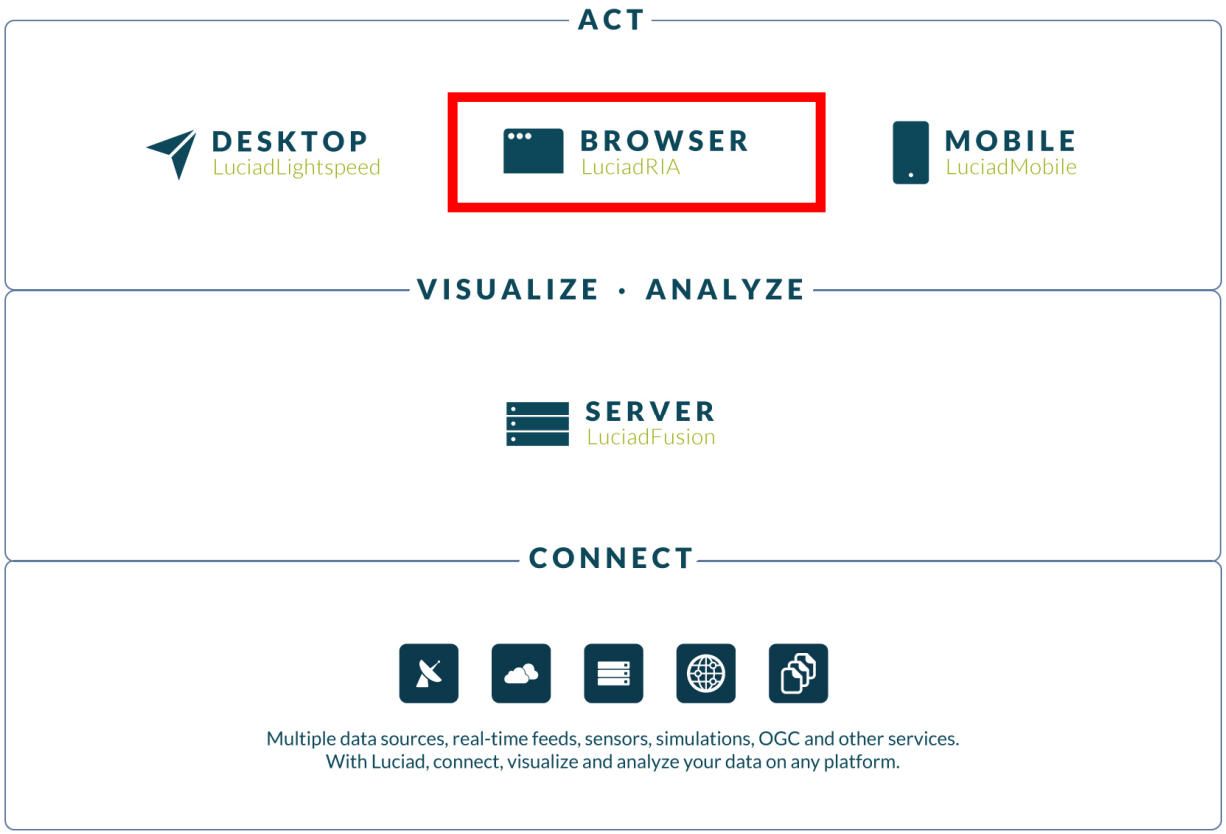
LUCIAD SOLUTIONS



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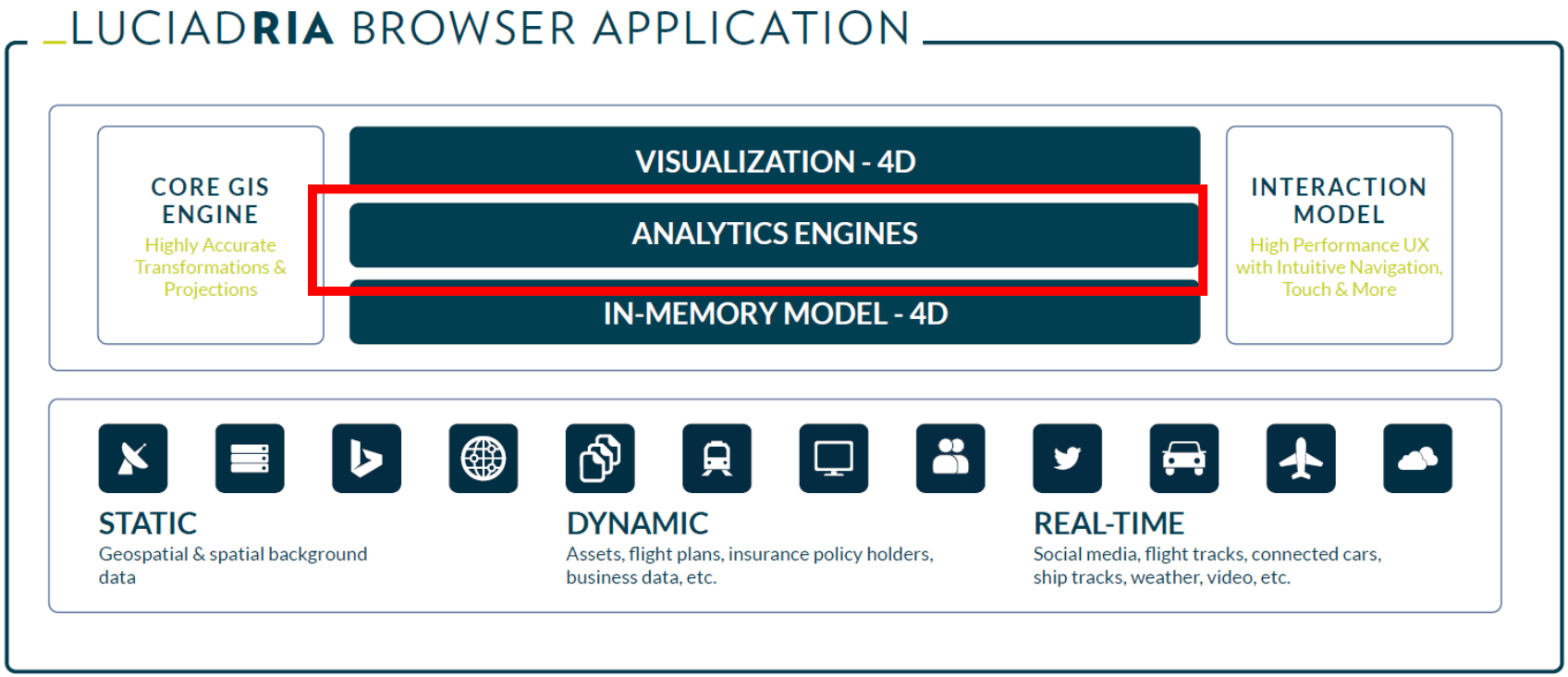
BROWSER - ARCHITECTURE



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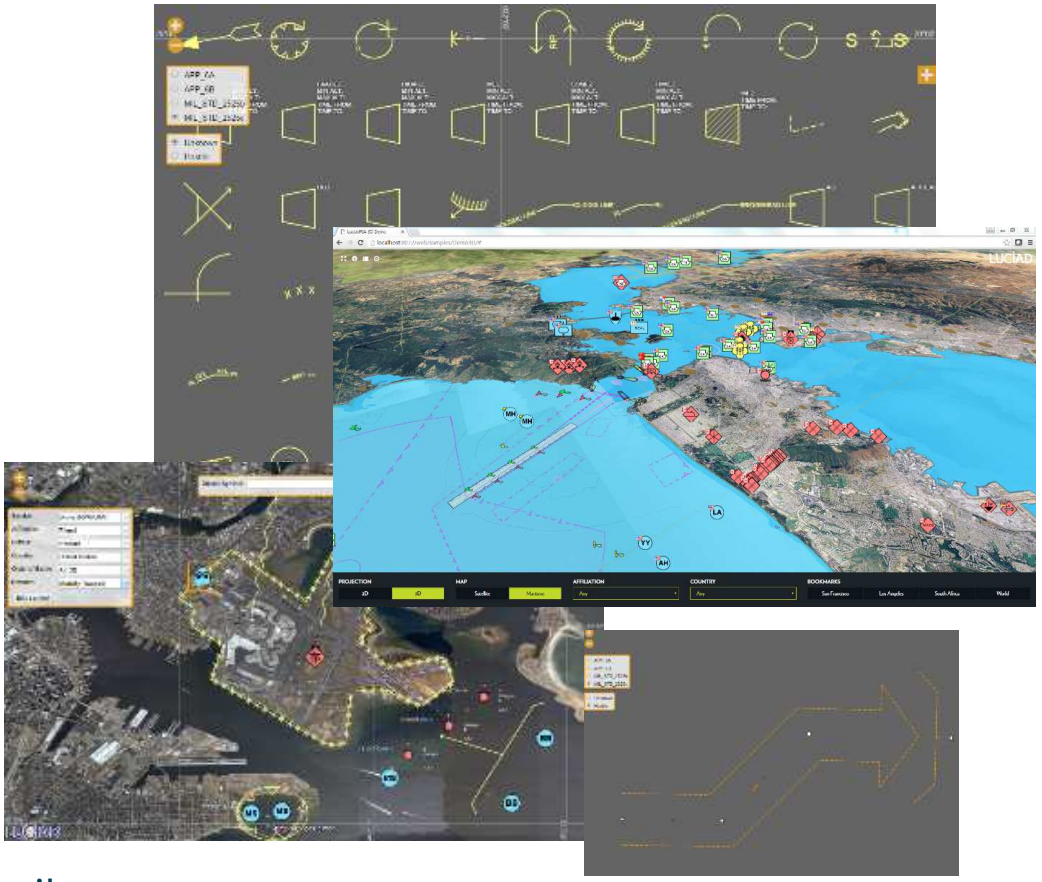
DEFENSE SYMBOLOGY

- Support for military unit symbols
  - APP-6A
  - APP-6B
  - APP-6C
  - MIL-STD 2525b
  - MIL-STD 2525c
- Extensive support over symbol styling
  - Frame, fill, icon
- Turn any shape into a tactical graphic
- LuciadLightspeed symbology service
- Flexible clustering of icons based on any attribute



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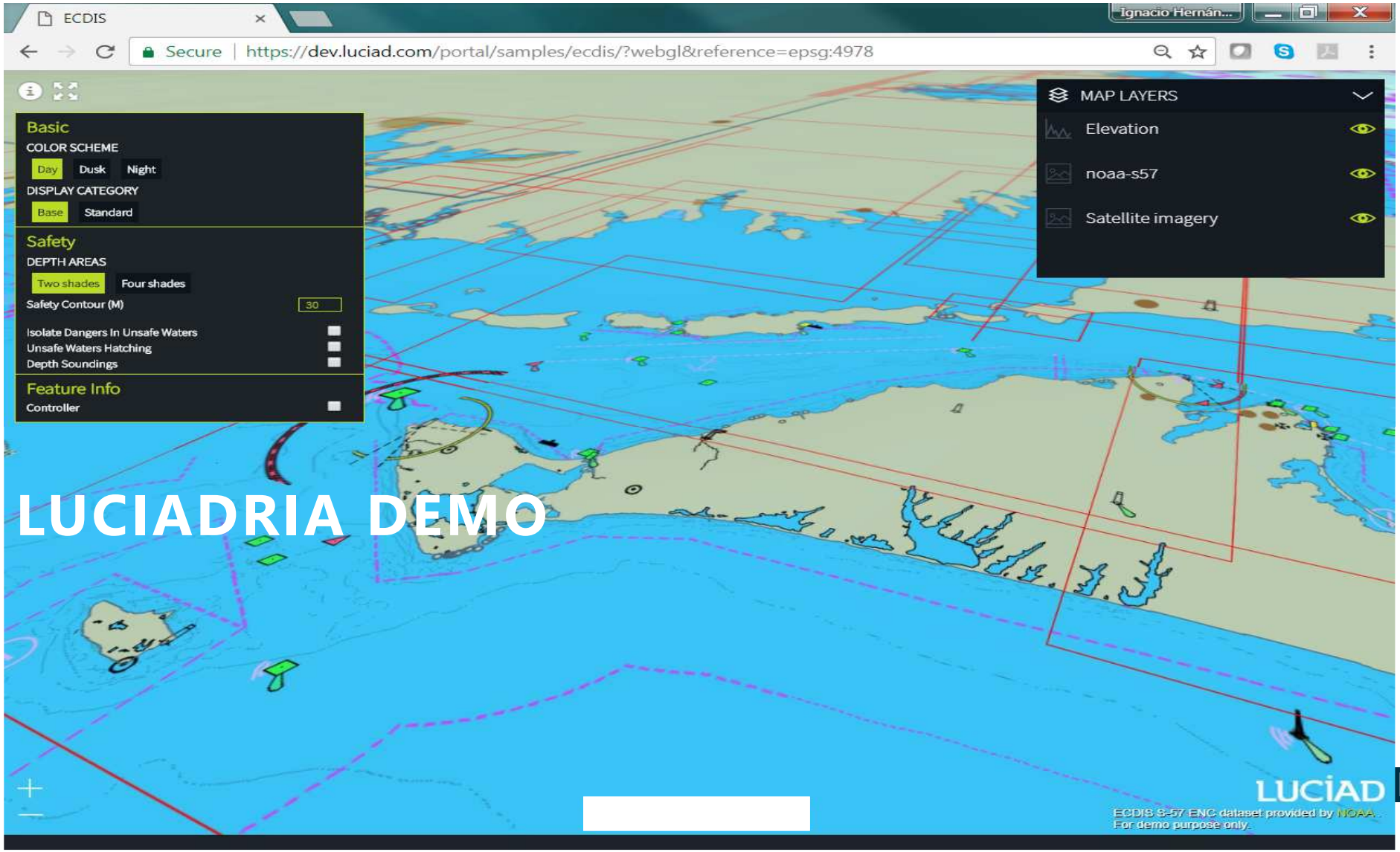

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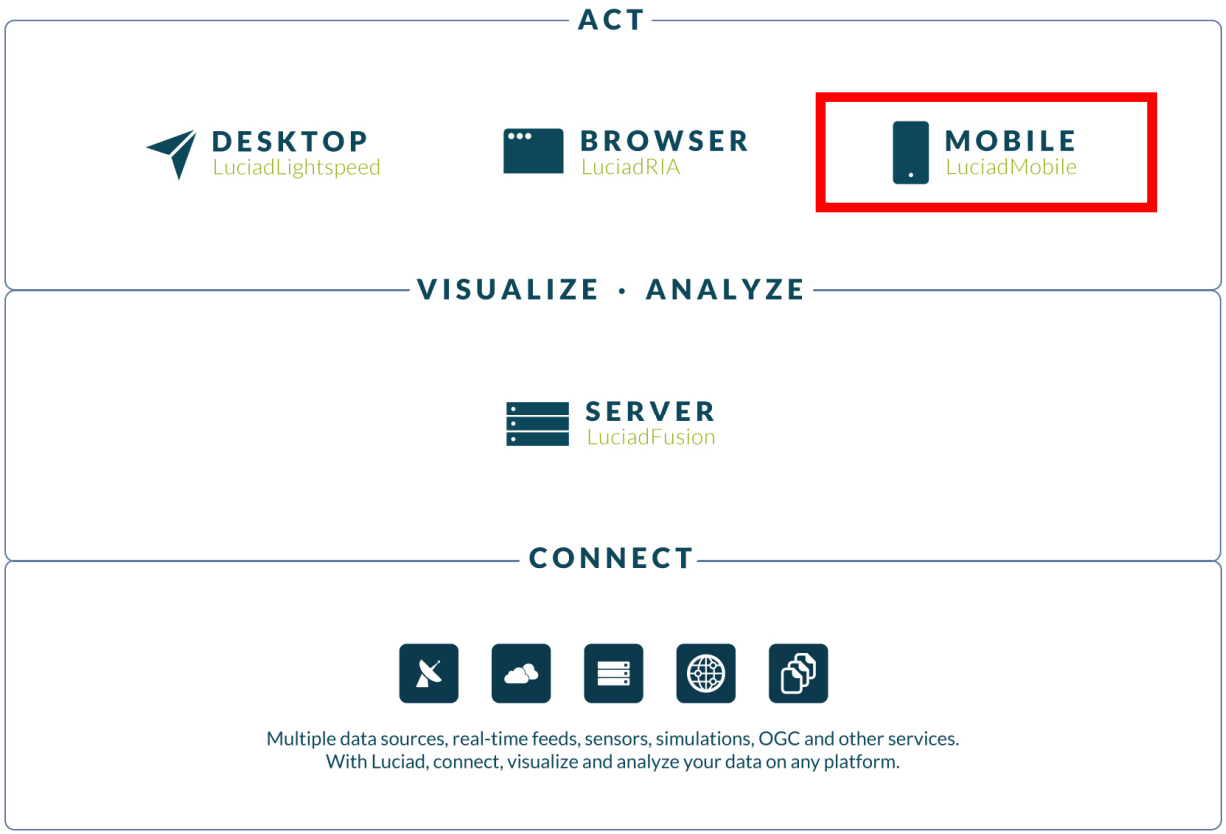
LUCIAD SOLUTIONS



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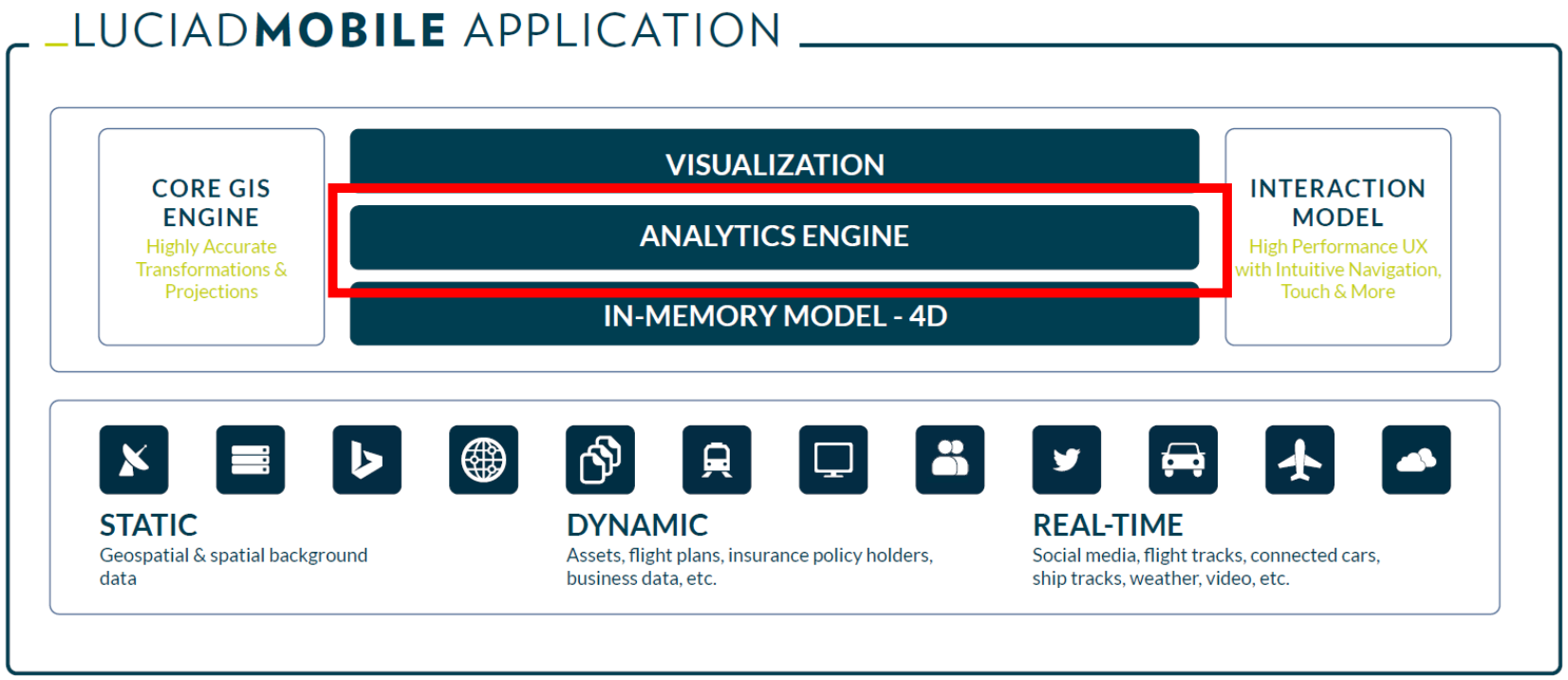
MOBILE - ARCHITECTURE



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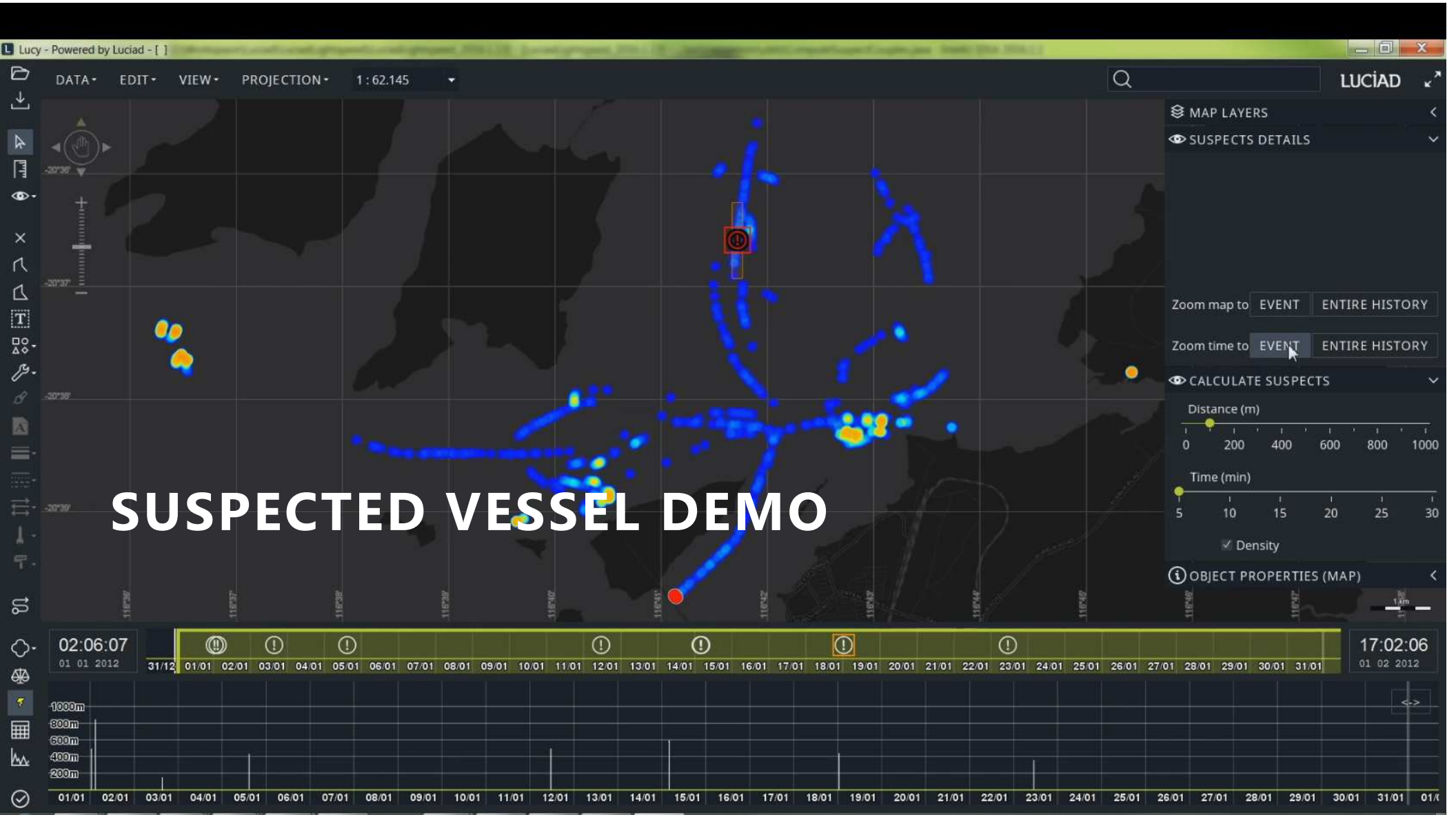
Lucy - Powered by Luciad - [ ]
DATA
EDIT
VIEW
PROJECTION
1 : 62.145
LUCIAD
MAP LAYERS
SUSPECTS DETAILS
Zoom map to
EVENT
ENTIRE HISTORY
Zoom time to
EVENT
ENTIRE HISTORY
CALCULATE SUSPECTS
Distance (m)
0
200
400
600
800
1000
Time (min)
5
10
15
20
25
30
Density
OBJECT PROPERTIES (MAP)
SUSPECTED VESSEL DEMO
02:06:07
01 01 2012
17:02:06
01 02 2012
1000m
800m
600m
400m
200m

VESSELS' HISTORICAL DATA

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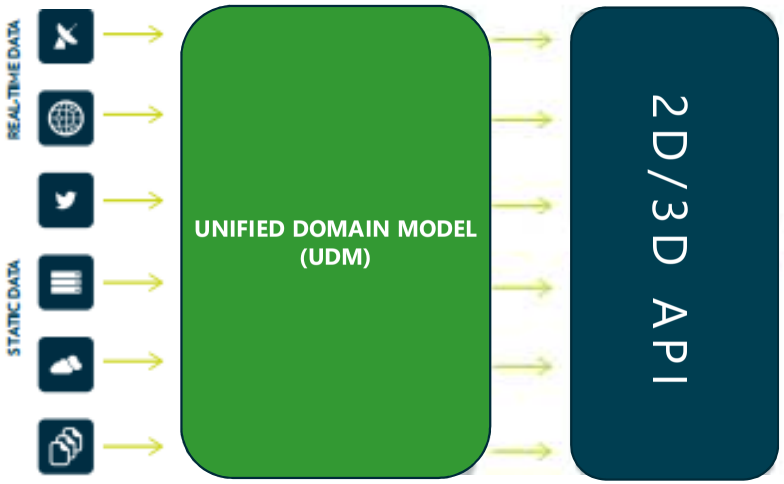
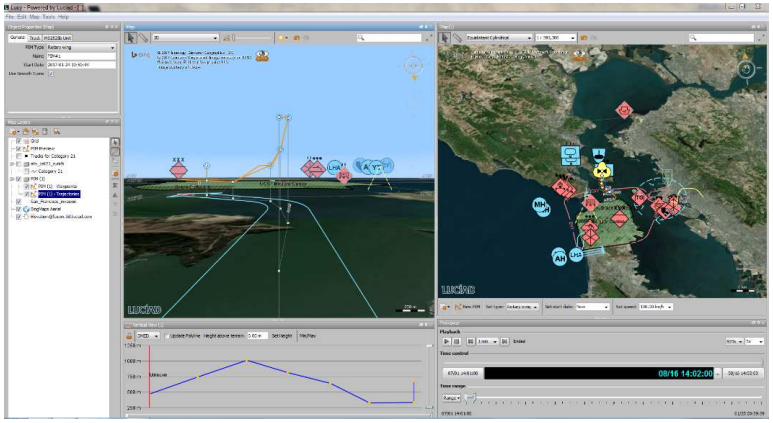
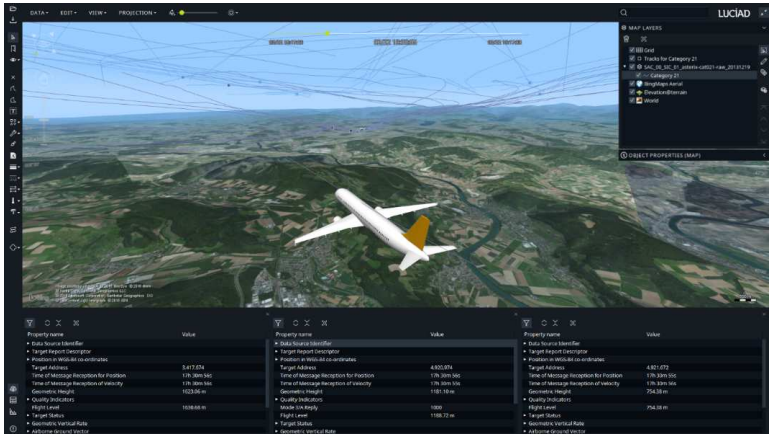
UNIFIED DATA MODEL







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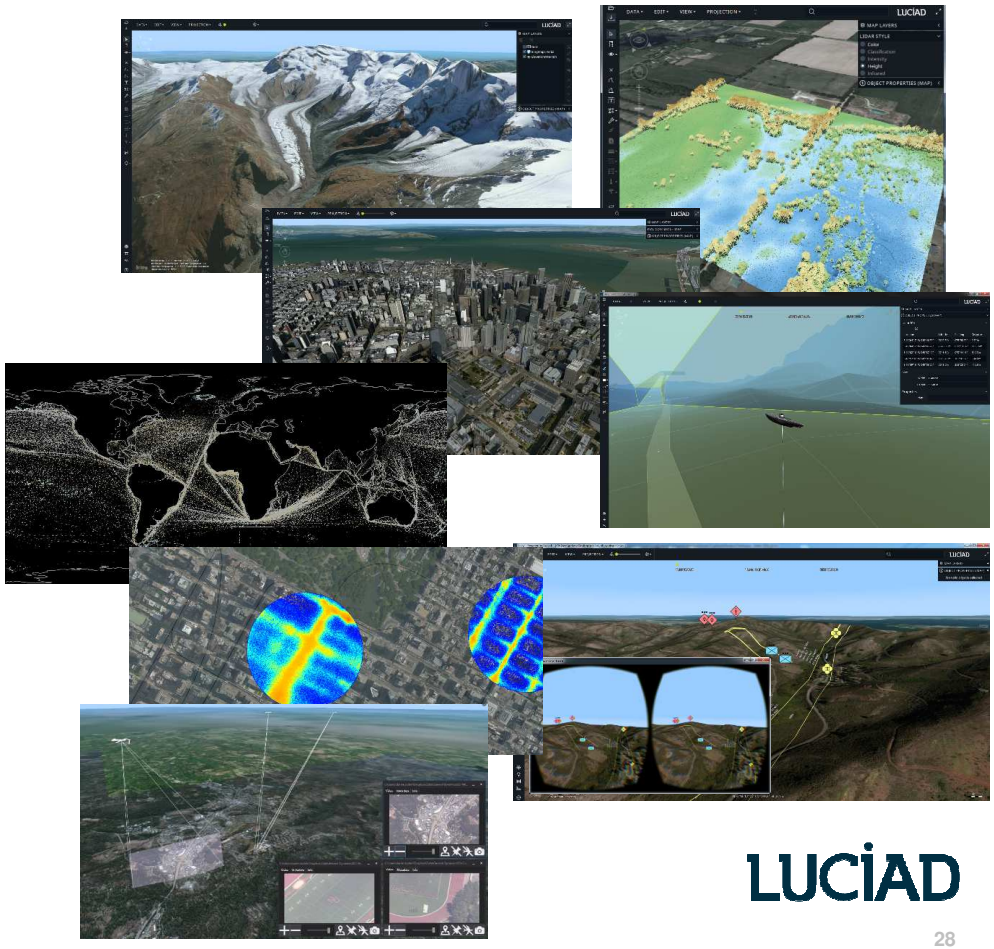
GPU 2D/3D/VR VISUALIZATION ENGINE

- Single unified API for 2D & 3D
- Layered view, any projection
- Optimized for large data sets and data that changes or moves
- Handles multiple millions of static points
- Handles multiple 100k of moving points
- Drape any data in 3D, including radar and (aerial) video



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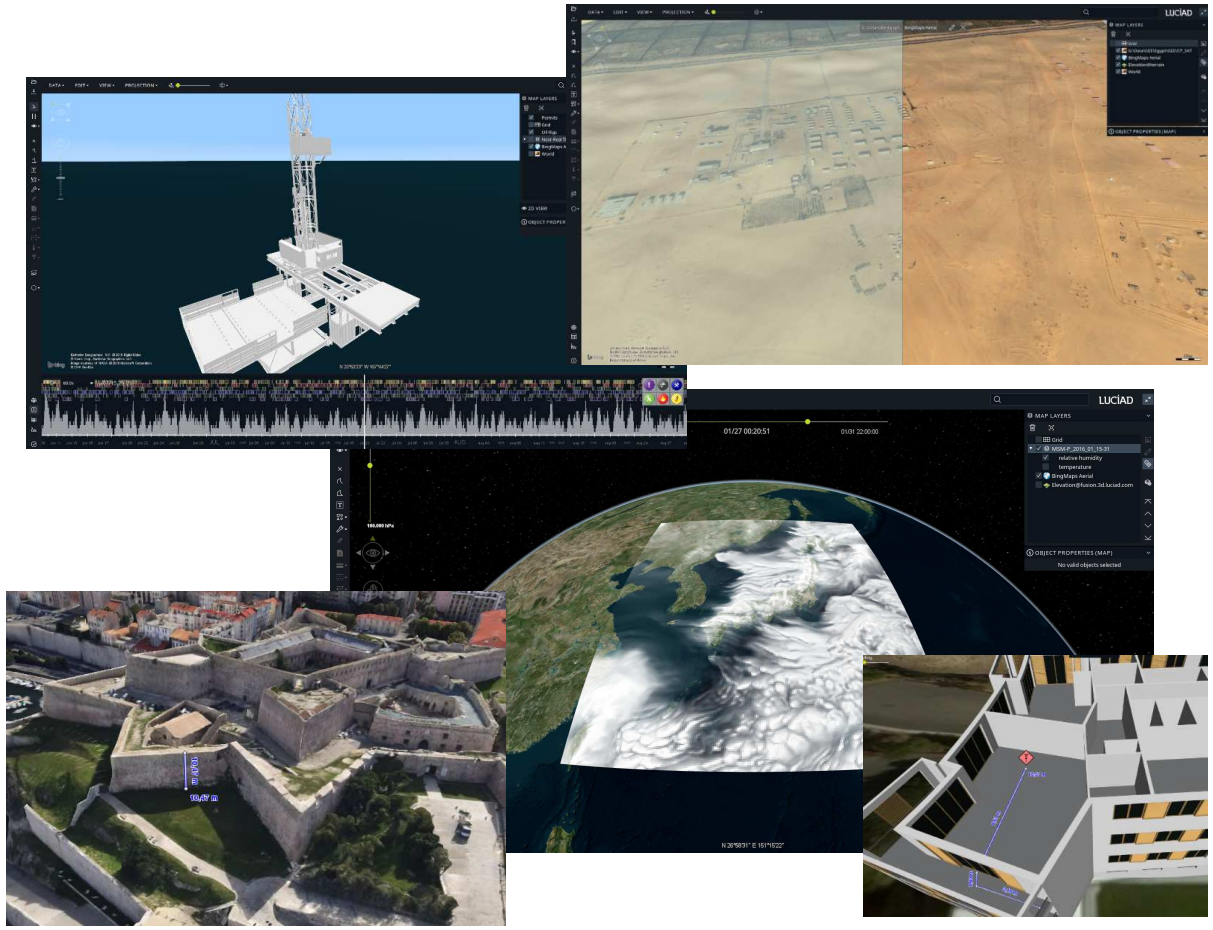
2D/3D/4D INTERACTION MODEL

- Intuitive navigation controllers
- Mouse, multi-touch
- 2D & 3D graphical selection, creation & editing
- 2D & 3D Measurement controllers
- Dimensional and temporal sliders
- Change detection: swipe, flicker, porthole
- Timeline view

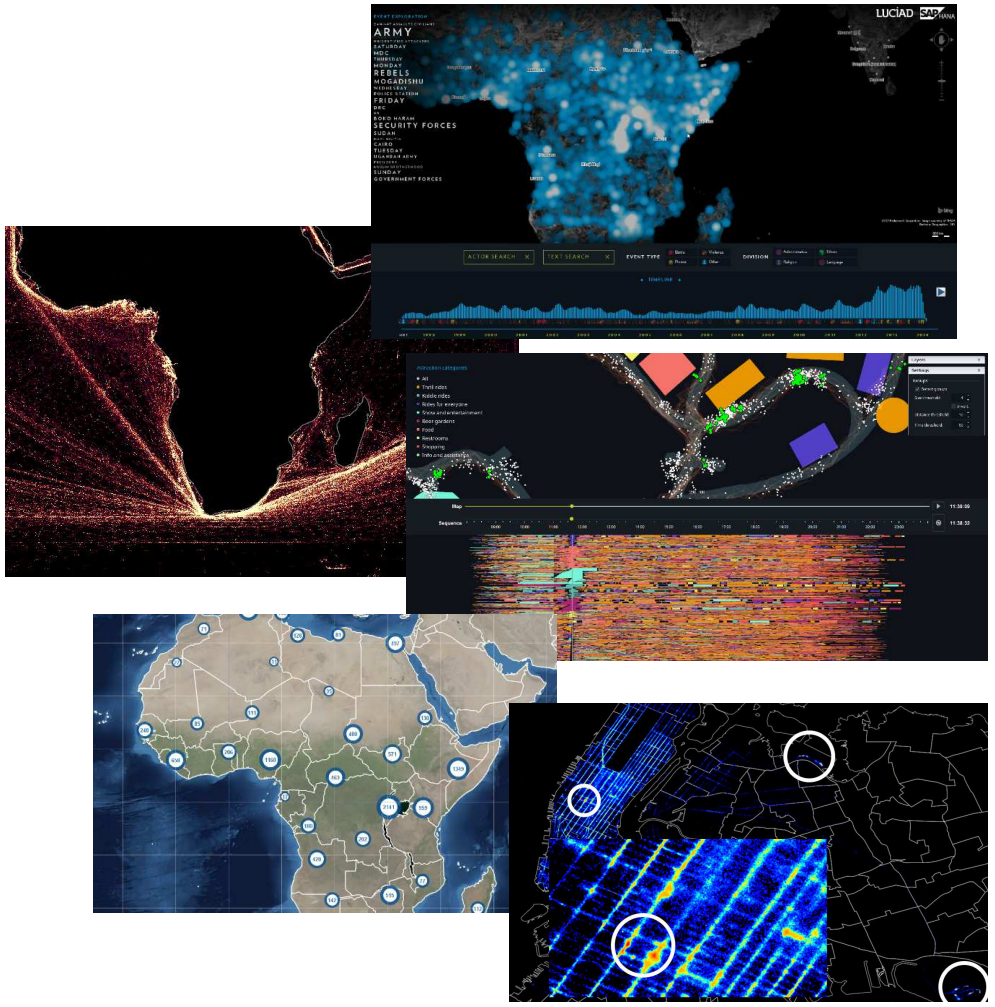


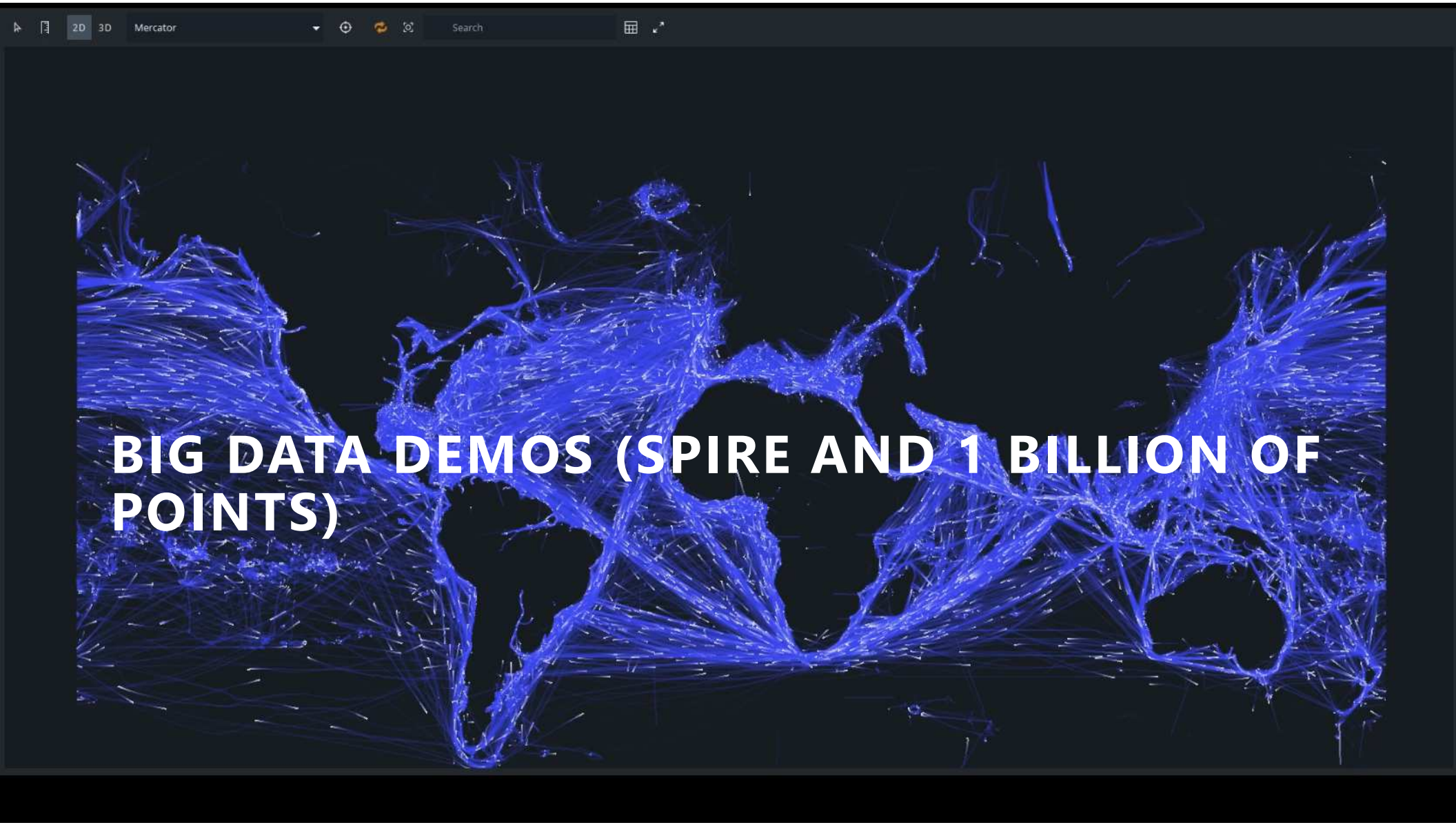
VERTICAL, PROFILE, TIMELINE VIEWS

- → Fully customizable
- → Any visualization, editing, interaction
- → Polyline altitude, terrain profile
- → Cross-section with other data
- → Controls: zoom, pan, …
- → Event-driven updates

VISUAL ANALYTICS

- Data abstraction through clustering & heat maps
- Multiple views on same data
- Optimized engine for filtering and styling
- Handle 10s of millions of plots interactively
- Correlate multiple data sources
- 60 Hz interaction




2D
3D
Mercator
Search
BIG DATA DEMOS (SPIRE AND 1 BILLION OF POINTS)

INTEGRATION OF RELEVANT OPEN SOURCE INFORMATION

LUCIAD

FLEXIBILITY: BASED ON STANDARDS

- Data Agnostic
- Not tied to any data format
- No pre-process is required
- Any kind of format
- OGC First!
- Open Source Software + Tied Data Format = CLOSED & UNSECURED SOLUTION
  - NGA : ¨No Web Mercator¨

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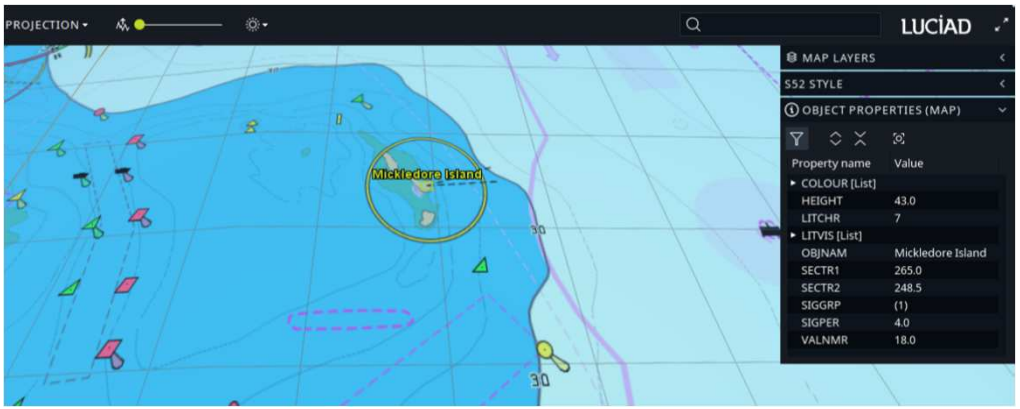
OGC STANDARDS

- OGC WMS, WFS, WCS, WMTS, CSW clients
- OGC KML
- OGC GeoPackage
- OGC SLD/SE

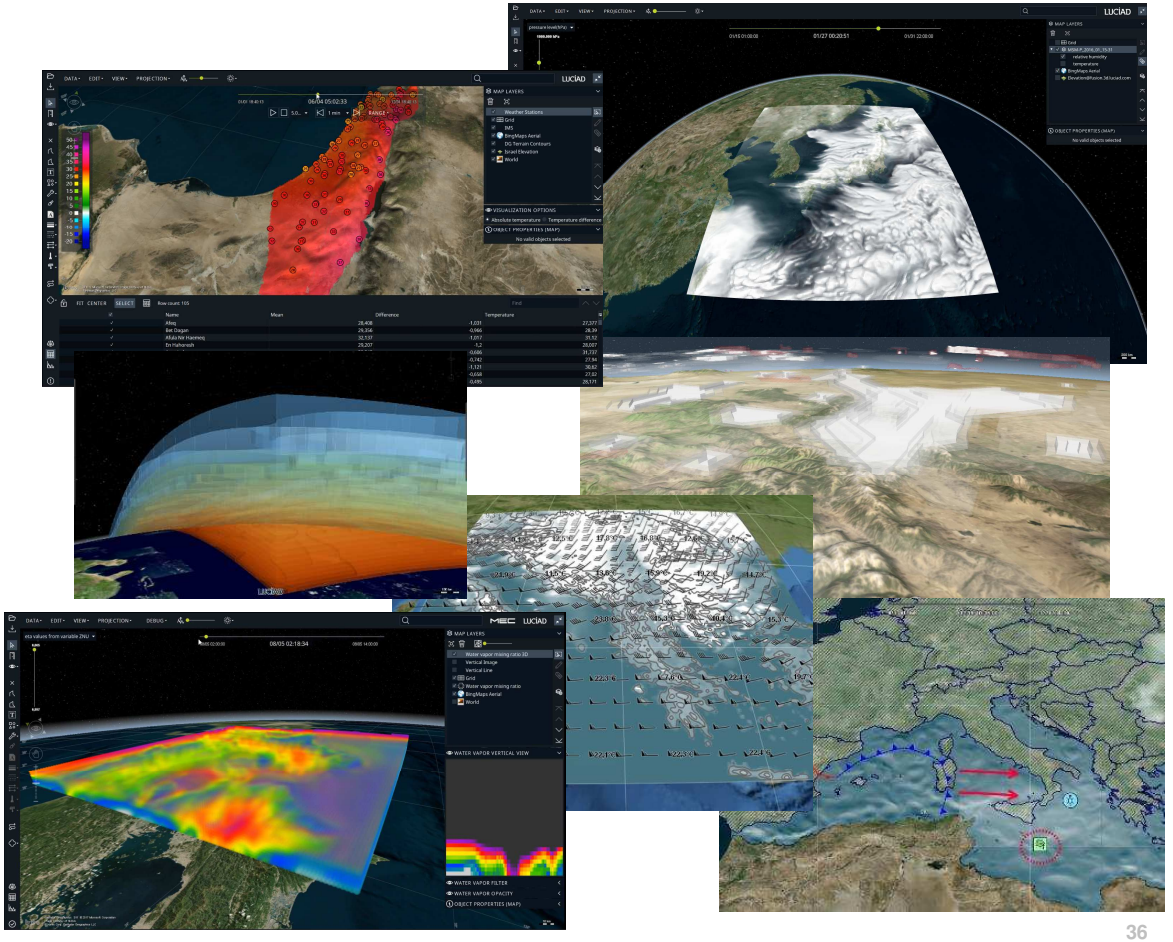


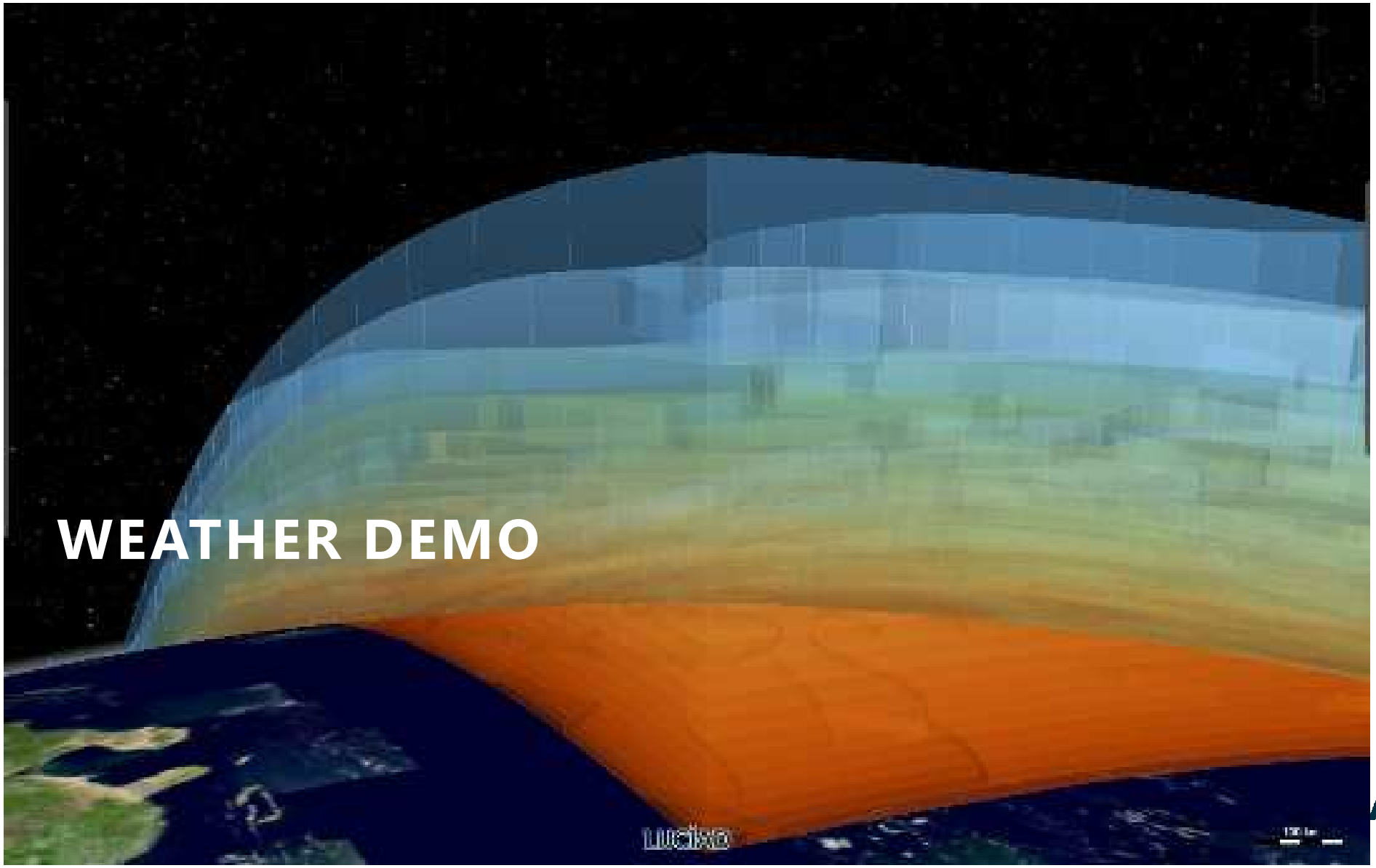
OGC®
Making location count.

LUCIAD

WEATHER & ENVIRONMENT STANDARDS

- Visualization & Analysis
  - Filtering
  - Slicing
  - Simulation over time
- Access data, extract contours, extruded shapes,…
- Style with wind barbs, icons,…
- Integrated UI controls
- Formats
  - NetCDF-CF
  - GRIB V1, V2





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SUPPORT TO RISK ASSESSMENT

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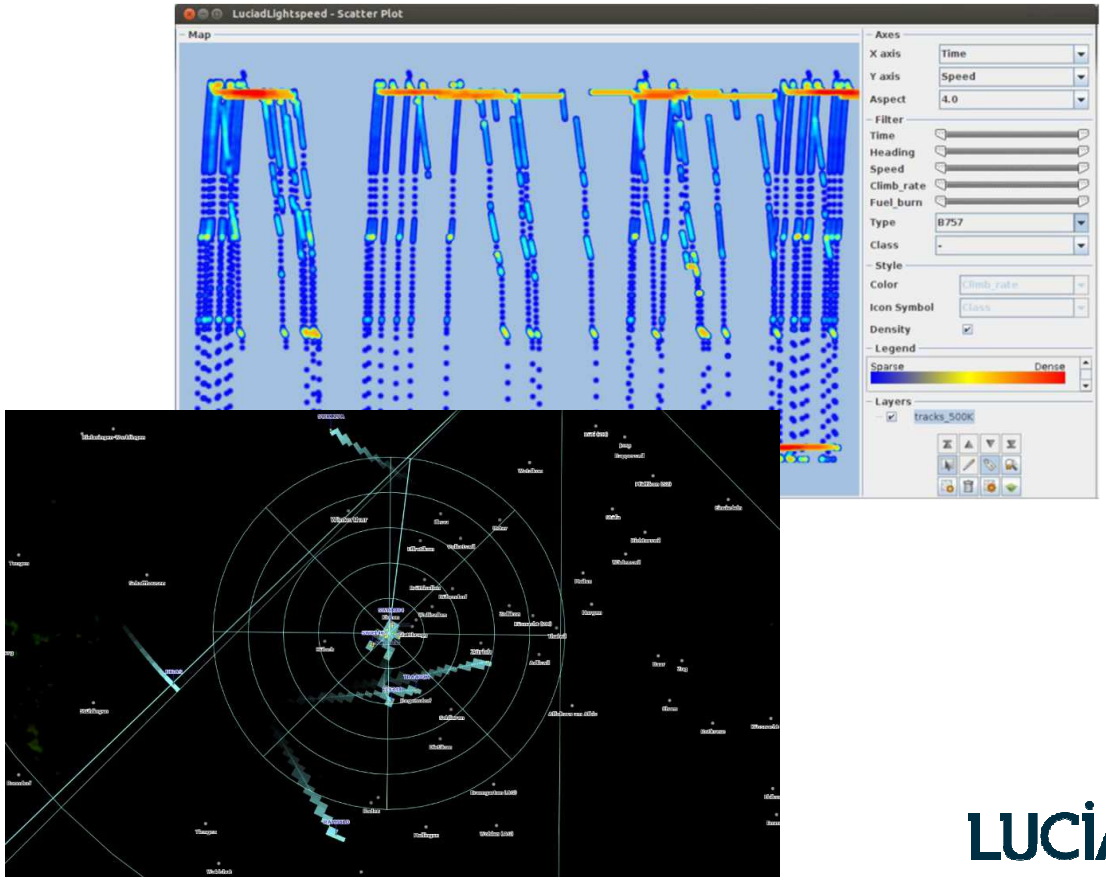
GEO AND NON-GEO RISK TOOL

- → Business Rules Integration
- → Real Time Risk Assessment
- → Geo and non-geo outcome



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2089m
2275m
HISTOGRAM HEADING
DENSITY HEADING
SPEED
VMG
Start
Finish
2 / 4
RISK ASSESMENT DEMO
2013-09-25 13:27:32
TOGGLE RANGE
3D
ABSOLUTE
RELATIVE
DOTS
POLAR

THANK YOU!

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