Application Programming Interface (API) To Disseminate NOAA Marine Data & Products

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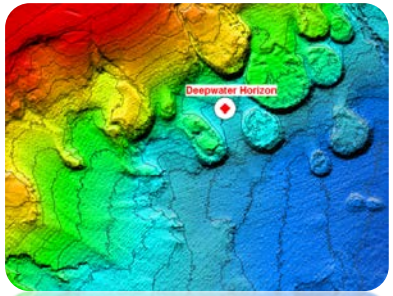
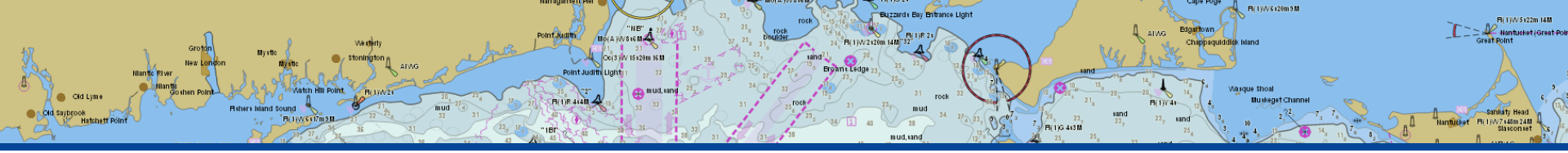
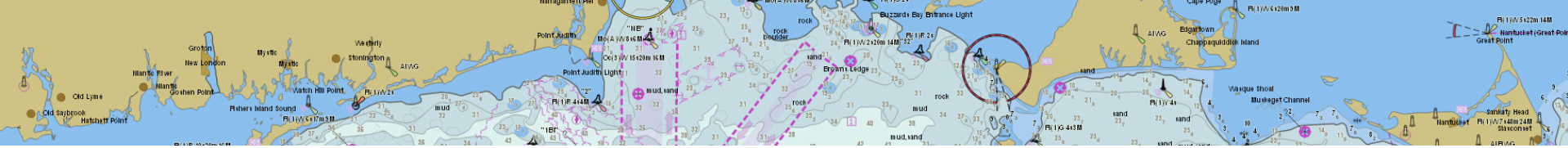


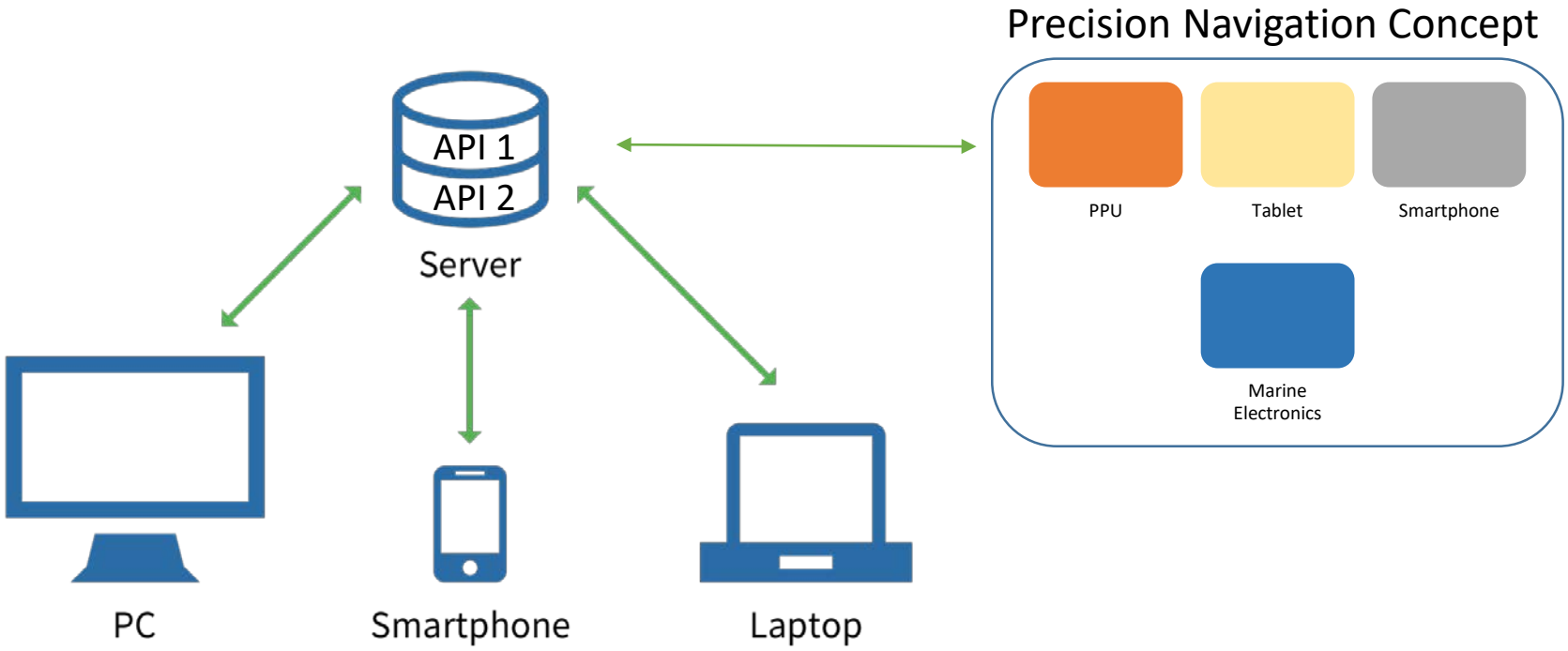


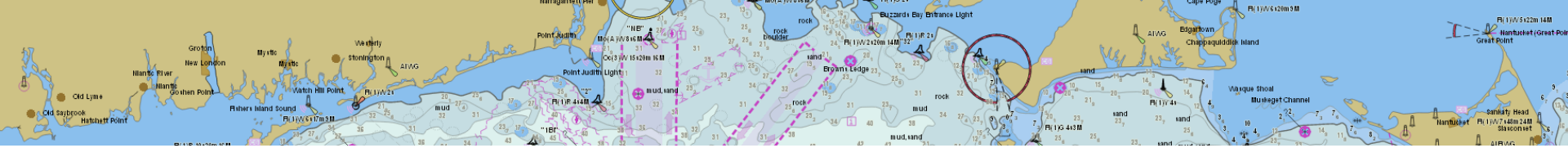
Application Programming Interface (API) Basics

- Businesses are built on APIs
- A way to serve our developers, third party providers etc.
- A library or server that receives requests and sends responses
- APIs operate as a gateway
  - Provide information (raw data, publications, notices, output from calculations, etc.)
  - Keep unwanted requests out
  - Machine to machine communications
- Client – server model

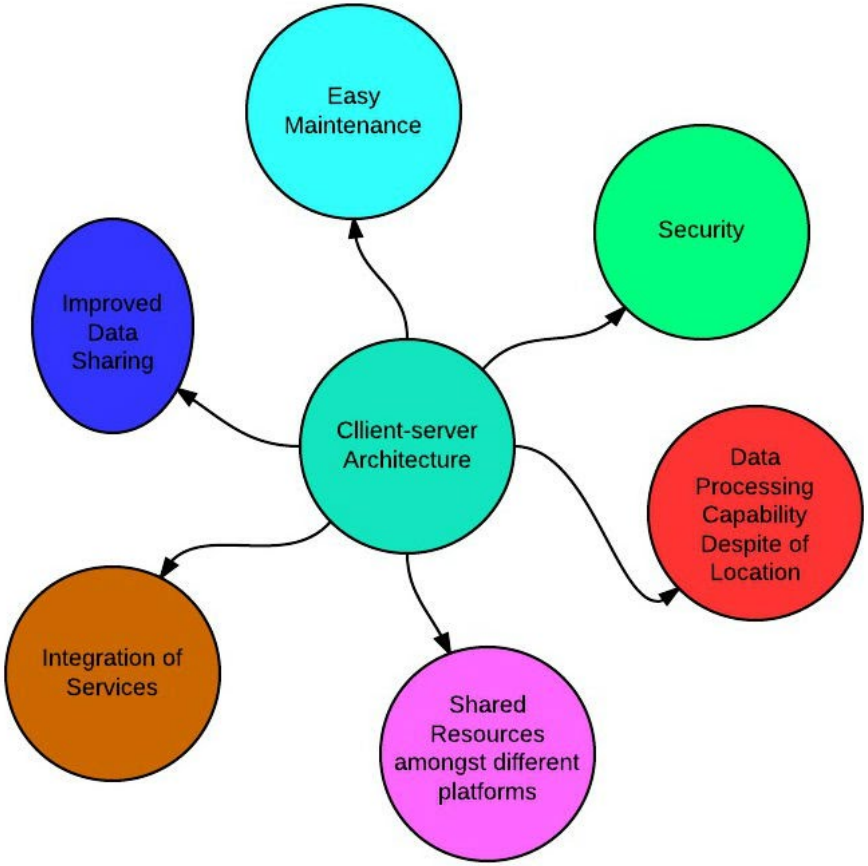


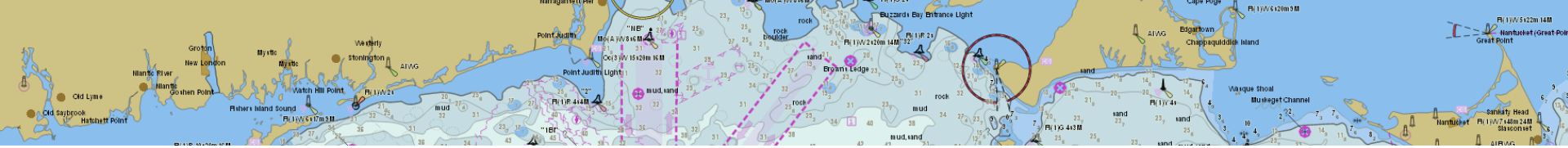
Client - Server Model





Advantages of Client - Server Architecture



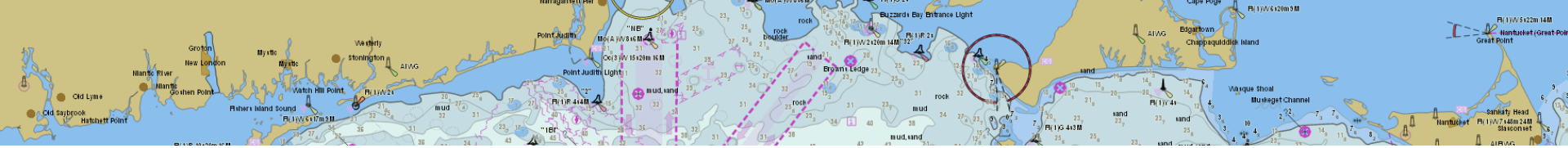


OCS API Software

- Object–oriented programming in C++
- Server supports multi-threaded architecture
- Communications via sockets using TCP protocol
- Supports 10,000 simultaneous and independent requests

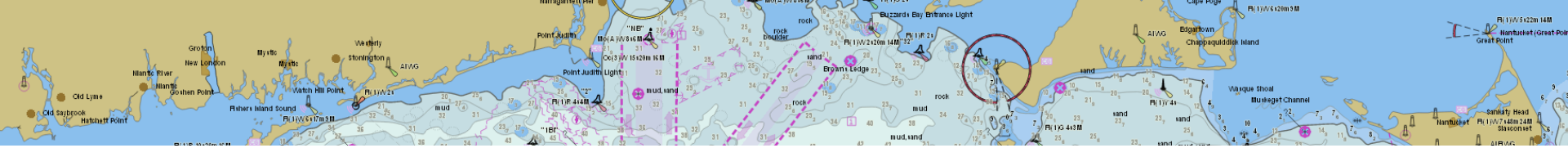
- API currently installed on Amazon Web Services cloud server
- Scalable
- Fast
- Secure

amazon web services™



Current API Functions

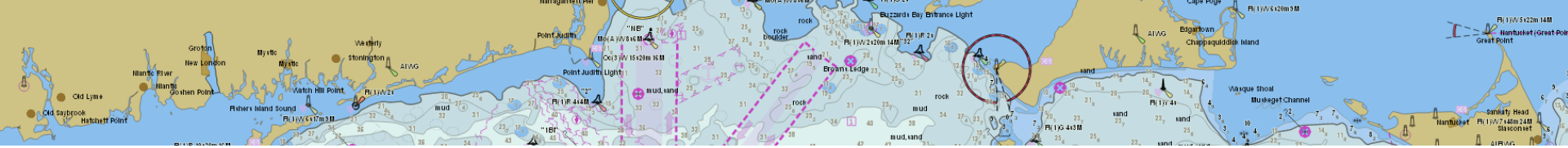
- Server Functions – Testing
  - Time
  - Server type
- Geodetic Functions – National Geodetic Survey, NOAA
  - Xyz2llh
  - Llh2xyz
  - Geoid12B
  - Xgeoid17
  - Vdatum
  - CORS Rinex data
  - CORS log files
  - CORS position files



Current API Functions

- Navigational Products – Office of Coast Survey, NOAA
  - Nautical charts – PDF
  - Nautical charts – Booklet charts
  - Nautical charts – ENCs
  - Nautical charts – RNCs
  - Notice to Mariners – all chart regions
  - Coast Pilot – 9 regions
  - Vdatum

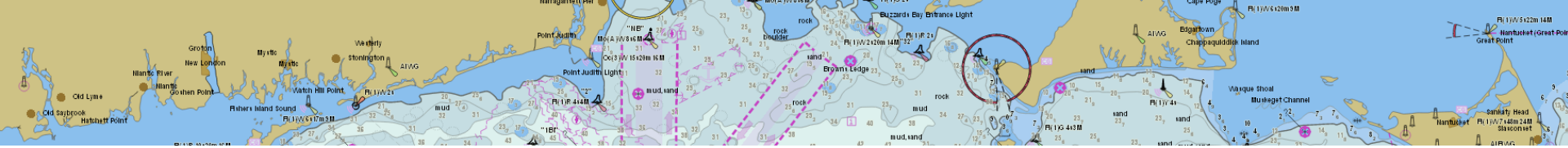
Office of Coast Survey
National Oceanic and Atmospheric Administration
U.S. Department of Commerce



Current API Functions

- Tides and Water Levels Products – Center for Operational Oceanographic Products and Services, NOAA
  - Water levels
  - Air temperature, wind, water temperature etc.
  - Salinity
  - Currents
  - Datum information

NOAA TIDES & CURRENTS



Calling the API - Examples

- **Request Nautical Chart in PDF format**

./client 18.217.53.133

-charts -pdf 12251

- **Request Nautical Chart in ENC format**

./client 18.217.53.133

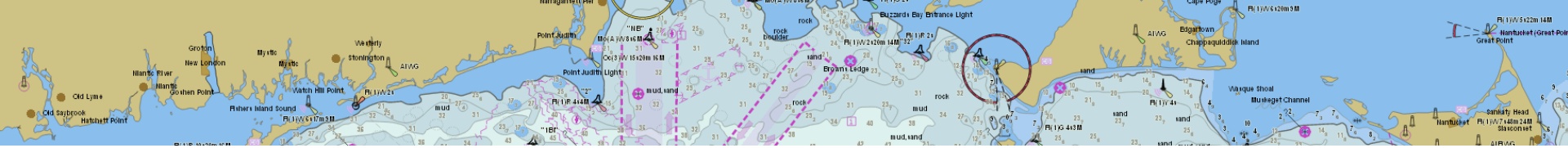
-charts -enc US5TX12M

- **Request Coast Pilot for a region**

./client 18.217.53.133

-charts -cp [1-9]

-charts -cp 3



Calling the API - Examples

- **Request CORS RINEX File**

./client 18.217.53.133

-cors -rinex SSSS YYYY DOY

-cors -rinex 1lsu 2018 132

- **Request Geoid12B calculation**

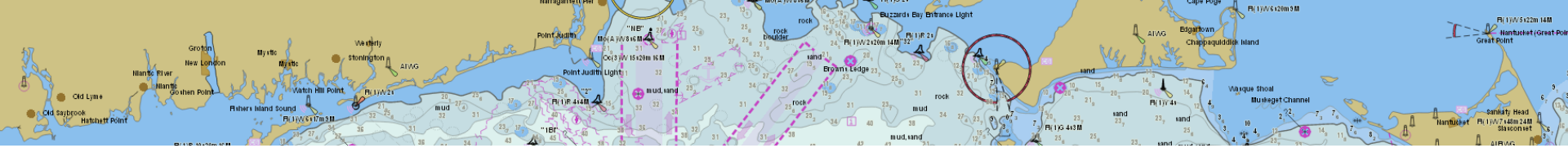
./client 18.217.53.133

-geoid12B -14.27149304 189.42703

- **Request Xgeoid17 calculation**

./client 18.217.53.133

-xgeoid17 64.48739203 194.68377



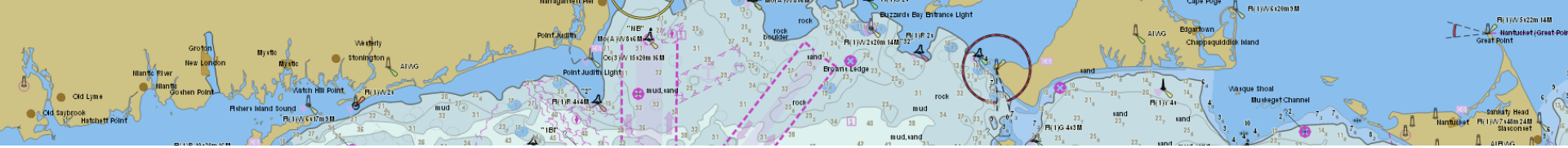
Calling the API - Examples

- **Request tides and water level information**

./client 18.217.53.133

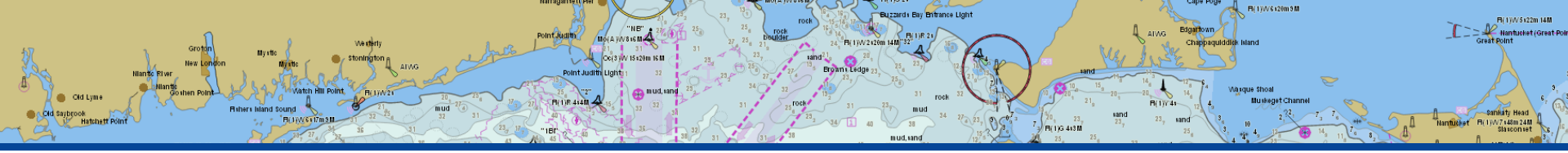
-coops -twl -date 20180810 –station 8454000 –product water_level -application NOAA

-units metric -time_zone gmt –format json



Under Development

- Output formats
  - JSON
  - XML
  - ASCII
  - Original file format
- Functionality
  - OFS model data
  - Integrated Ocean Observing System (IOOS) data
  - Integrate with Precision Navigation concept



Thank you

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