Virtual Yachting On The Web

Presented by
Quokka Sports

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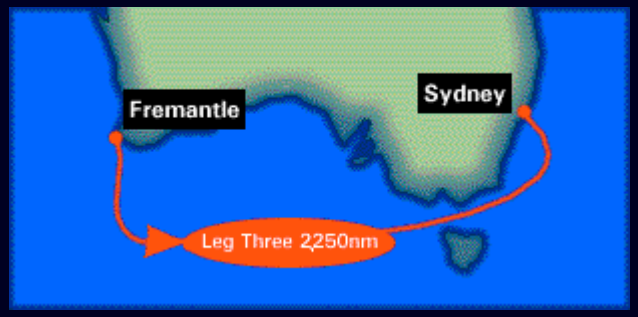
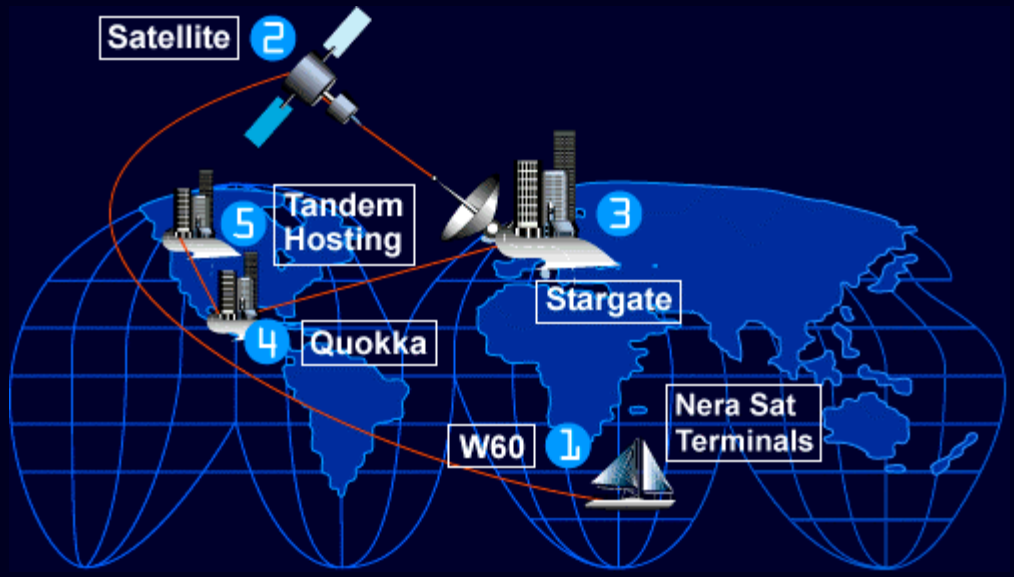
Virtual Yachting On The Web



9 Legs - 9 Ports

Virtual Yachting On The Web



Each boat equipped with GPS transmitters as well as Satellite uplink for weather and boat conditions, email, video, & images

Images, video and data transmitted to the Whitbread race office and replicated from the Race Management System to Quokka

Virtual Yachting On The Web

Why?

- Create an immersive experience
- Involve the audience
- Create a ‘sticky’ site
- Players sail head to head with the actual fleet

How?

- We’re collecting boat telemetry, but can we simulate it?

Virtual Yachting On The Web

Features

- Quality Simulation of the effects of sailing decisions on performance
  - hull design
  - sail selection
  - risk factors - events (demasted, man overboard, etc.)
  - course
  - select competitors

  - weather
  - boundaries

- Visualize the virtual fleet along side the actual fleet
  - nautical charts that pan and zoom illustrating the fleet
  - weather overlays with forecasted weather at 12 hour intervals

Virtual Yachting On The Web

Key Software Components

- Game Engine
  - C library
  - Weather data feed from uk met
- Database Harness For Game Engine
  - C++/Informix
- Web Harness For Game Engine
  - C++
- Graphical Client - Race Viewer - Active Sailing
  - Java Applets
- Nautical Chart Server
  - C++/Euronav Vector Graphic Charting Software

Physical Architecture

Chart Servers
WinNT

Weather

Race Results
WinNT

Web Browser
Java Applets

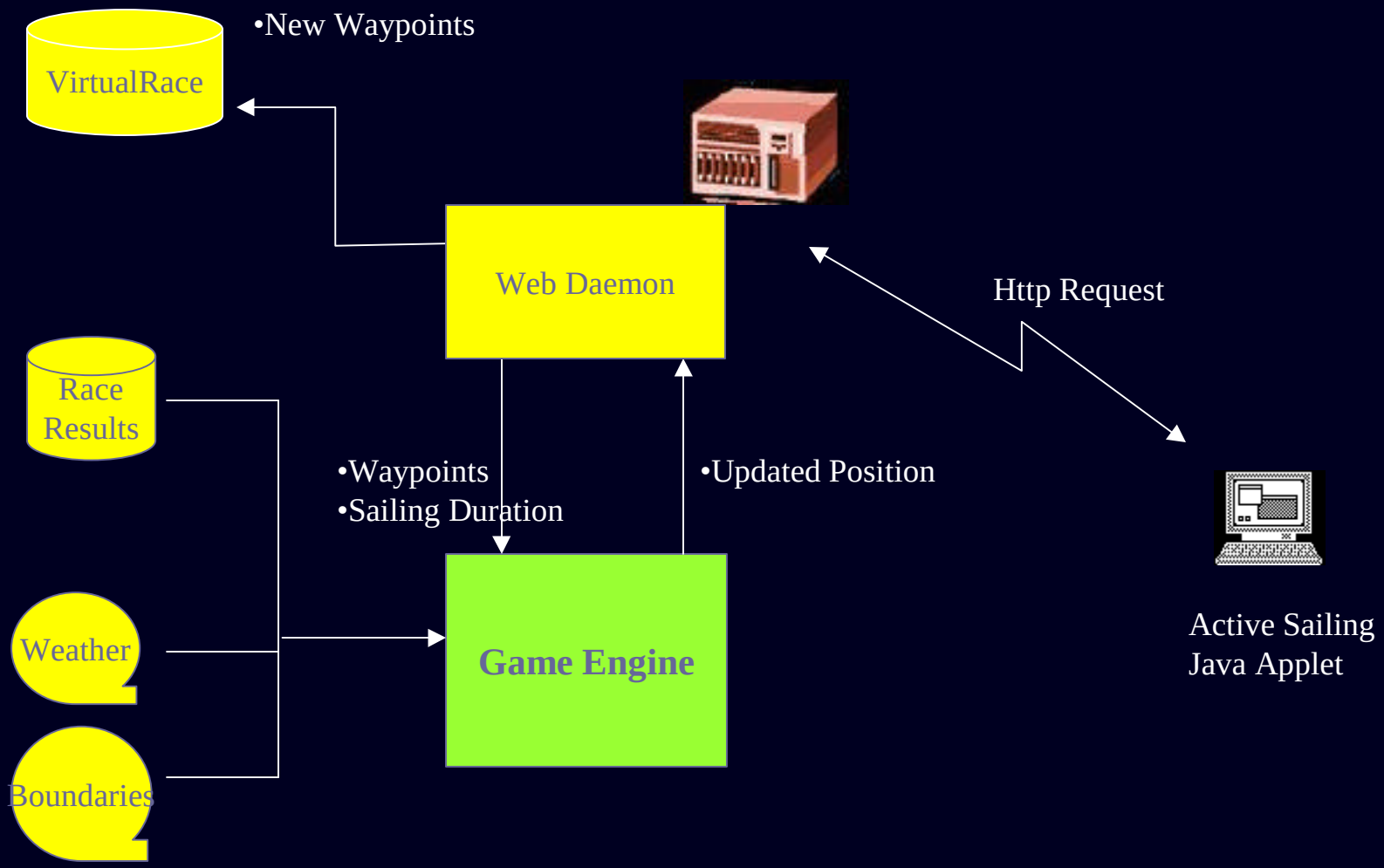
Web Server

Actual
Race Results

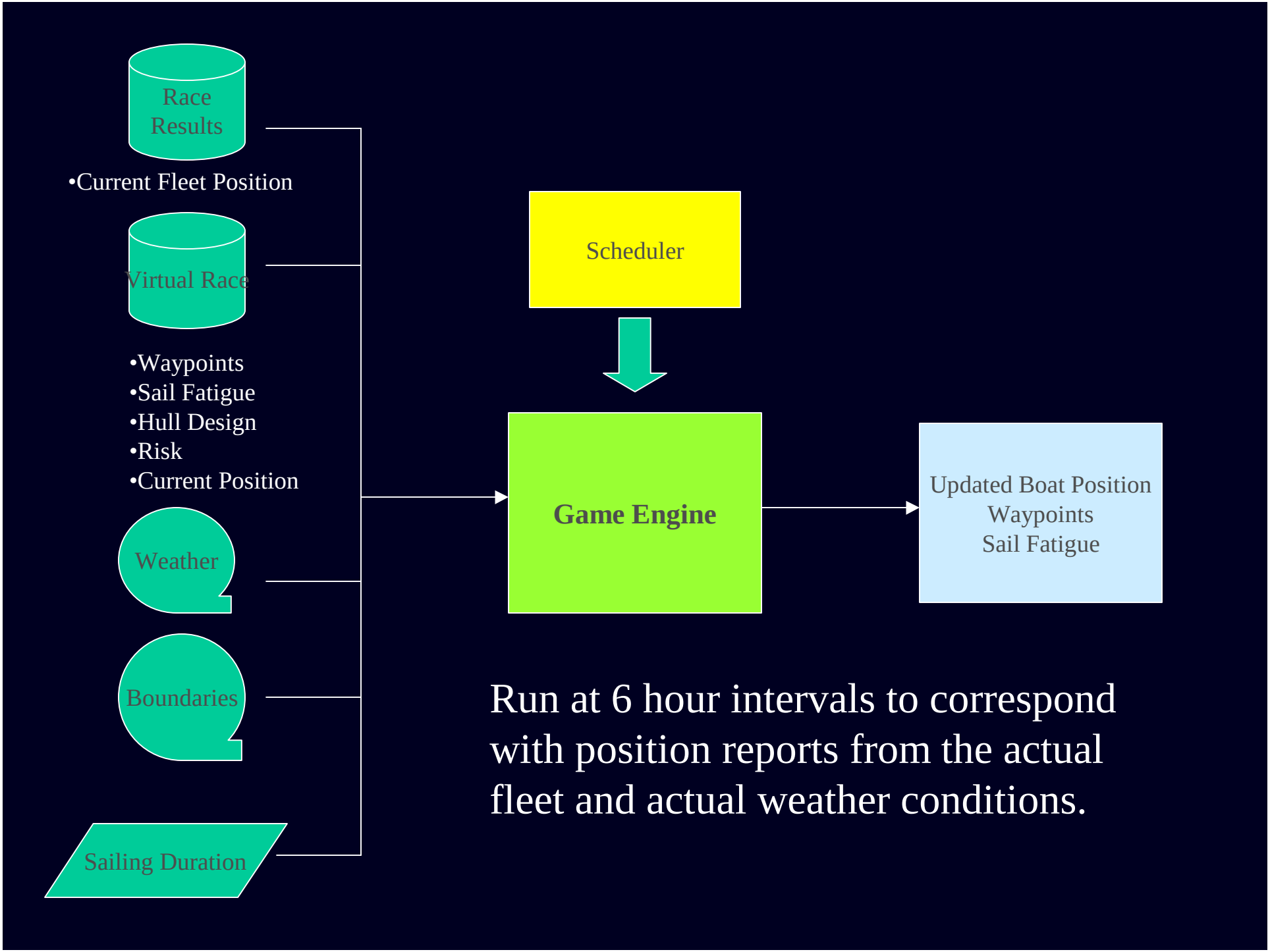
Active Sailing
WinNT

VR decisions,
results

Batch Processing
WinNT



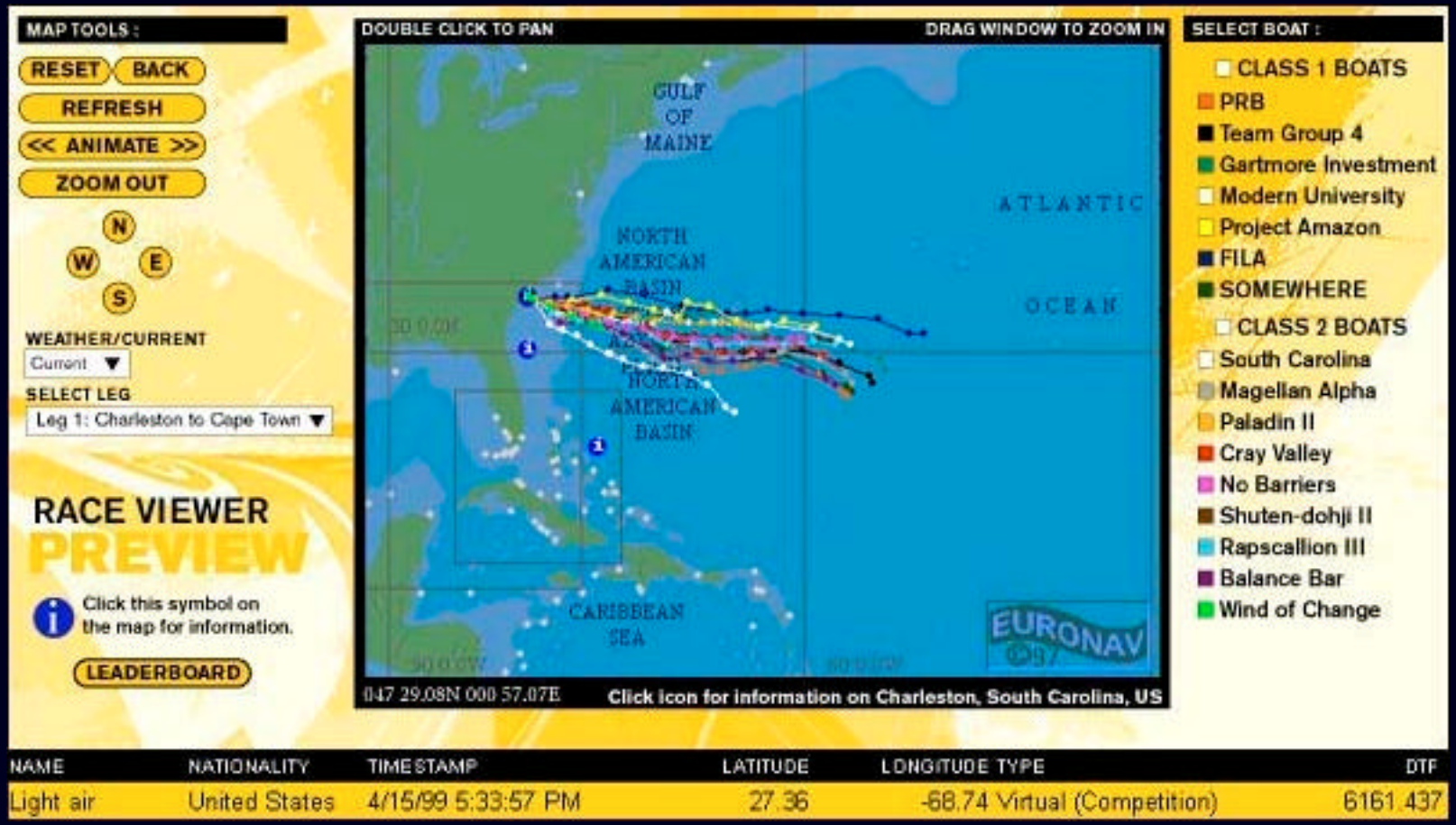
User input of waypoints and sailing decisions
Game engine available to run performance prediction against forecasted weather


Race Results
•Current Fleet Position
Virtual Race
•Waypoints
•Sail Fatigue
•Hull Design
•Risk
•Current Position
Weather
Boundaries
Sailing Duration
Scheduler
Game Engine
Updated Boat Position
Waypoints
Sail Fatigue
Run at 6 hour intervals to correspond with position reports from the actual fleet and actual weather conditions.

Virtual Yachting On The Web

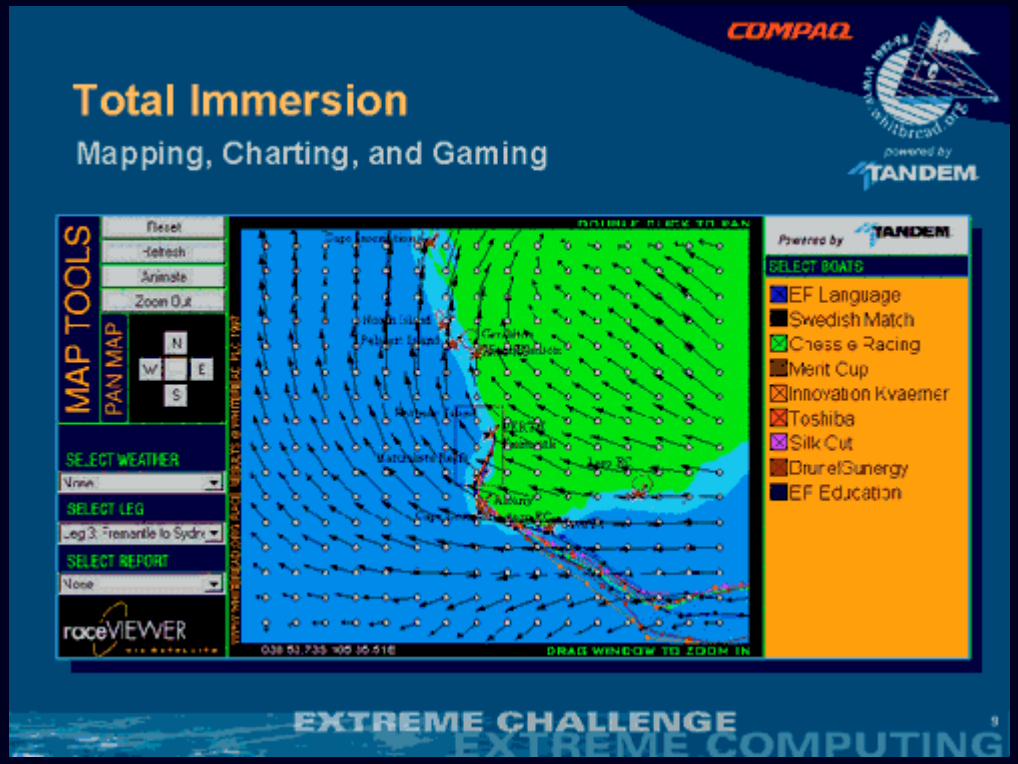
Race Viewer/Nav Station

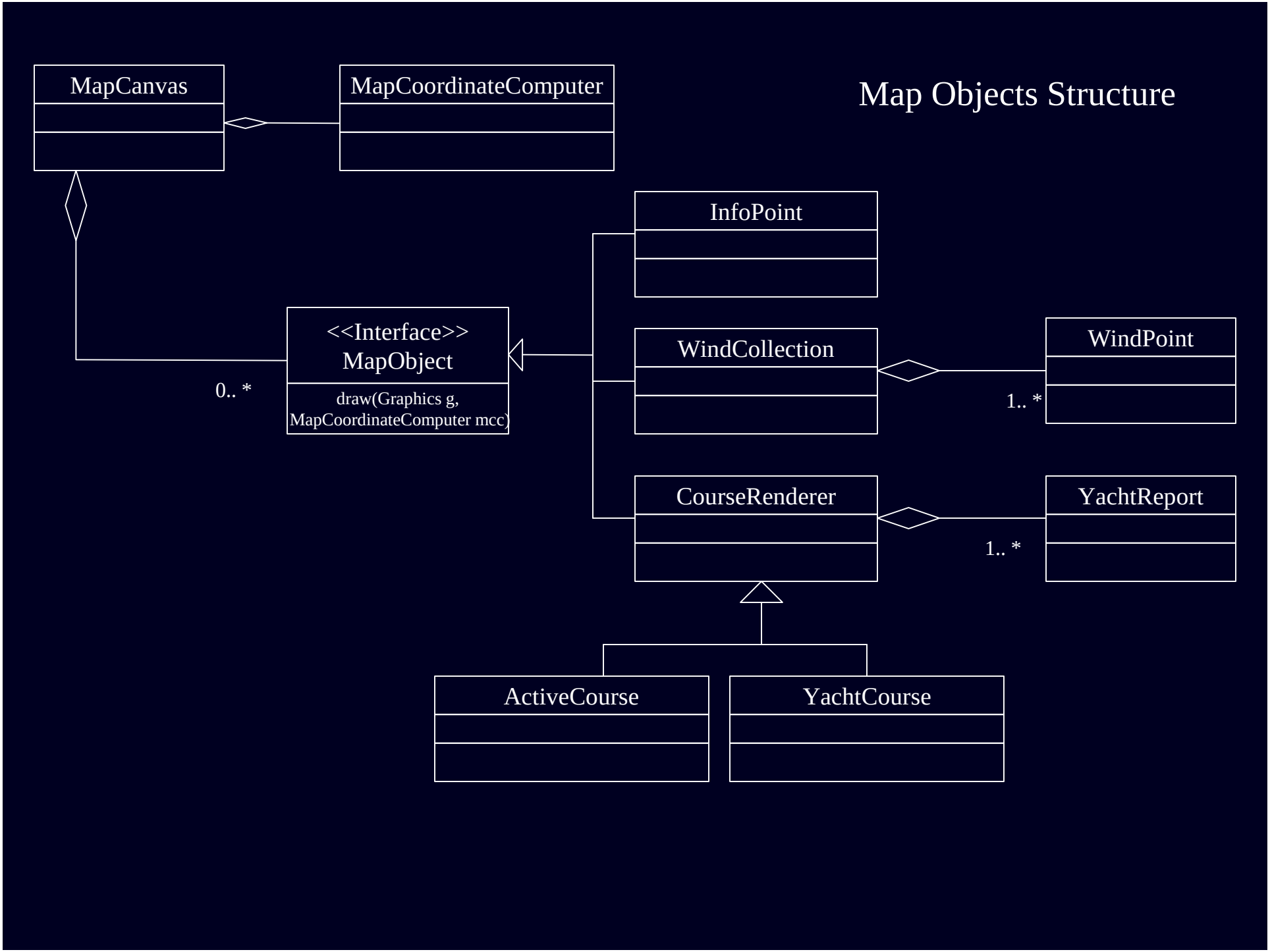
log book, sail status, leader board, etc.



Virtual Yachting On The Web

How does a user pilot a boat on the web?
UI design challenge
Navigation Demo
CMG VS Dead Reckoning

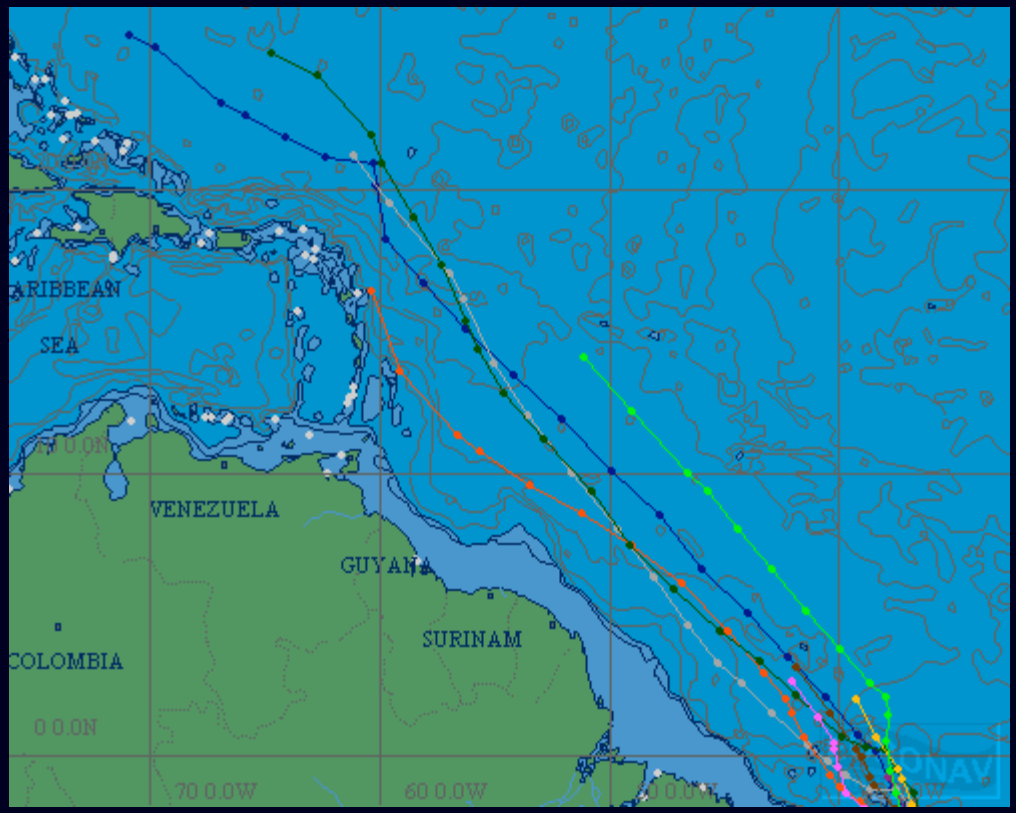



Map Objects Structure
MapCanvas
MapCoordinateComputer
InfoPoint
<<Interface>>
MapObject
draw(Graphics g,
MapCoordinateComputer mcc)
0.. *
WindCollection
WindPoint
1.. *
CourseRenderer
YachtReport
1.. *
ActiveCourse
YachtCourse

Virtual Yachting On The Web

Mapping Components re-used in:

- Race Management System
- Java Applets
- Flat Content Generation
- Animation Demo



Virtual Yachting On The Web

Development Experience

- 2.5 Quokka Engineers
  - Game Engine Daemons
  - Batch Game
  - Chart Server
  - Race Viewer/Nav Station (Visualizations)
  - Weather extraction from grib format
- 2 Off Site Game Engine Engineers
- 1.5 Graphic Designers
- Chart Engine Support/Euronav
- 6 Month Schedule
- The Right Team

Virtual Yachting On The Web

Serving The Virtual Race/Aftermath

- ~10000 Registered Virtual Yachters
- A few good bugs - boundary points & weather
- Charting bottlenecks
- Quality achieved into the first leg
- All 9 legs served
- Emails from around the world
- Servlet technology would have helped
- Charting Alternatives