Architectural / High Level design
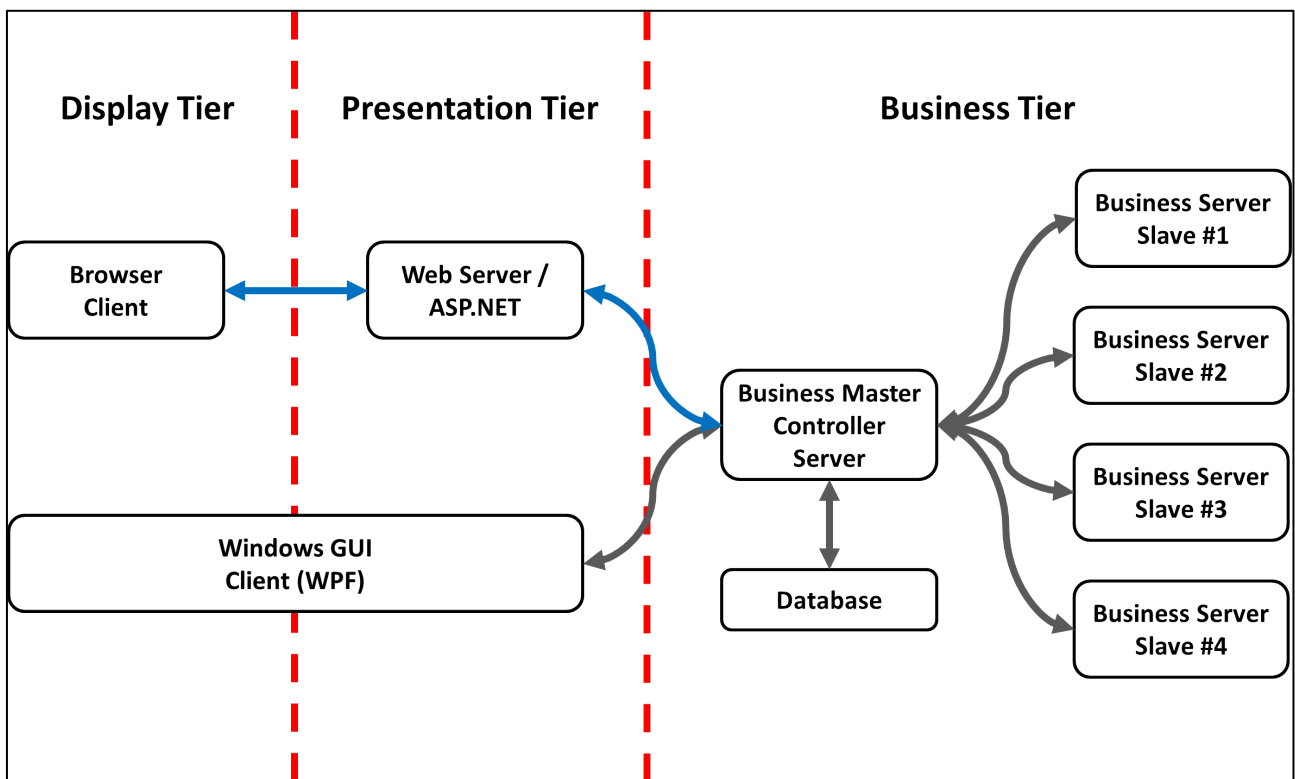

Figure 1: Architectural / Deployment diagram (Blue links are Internet links, the rest are network links)
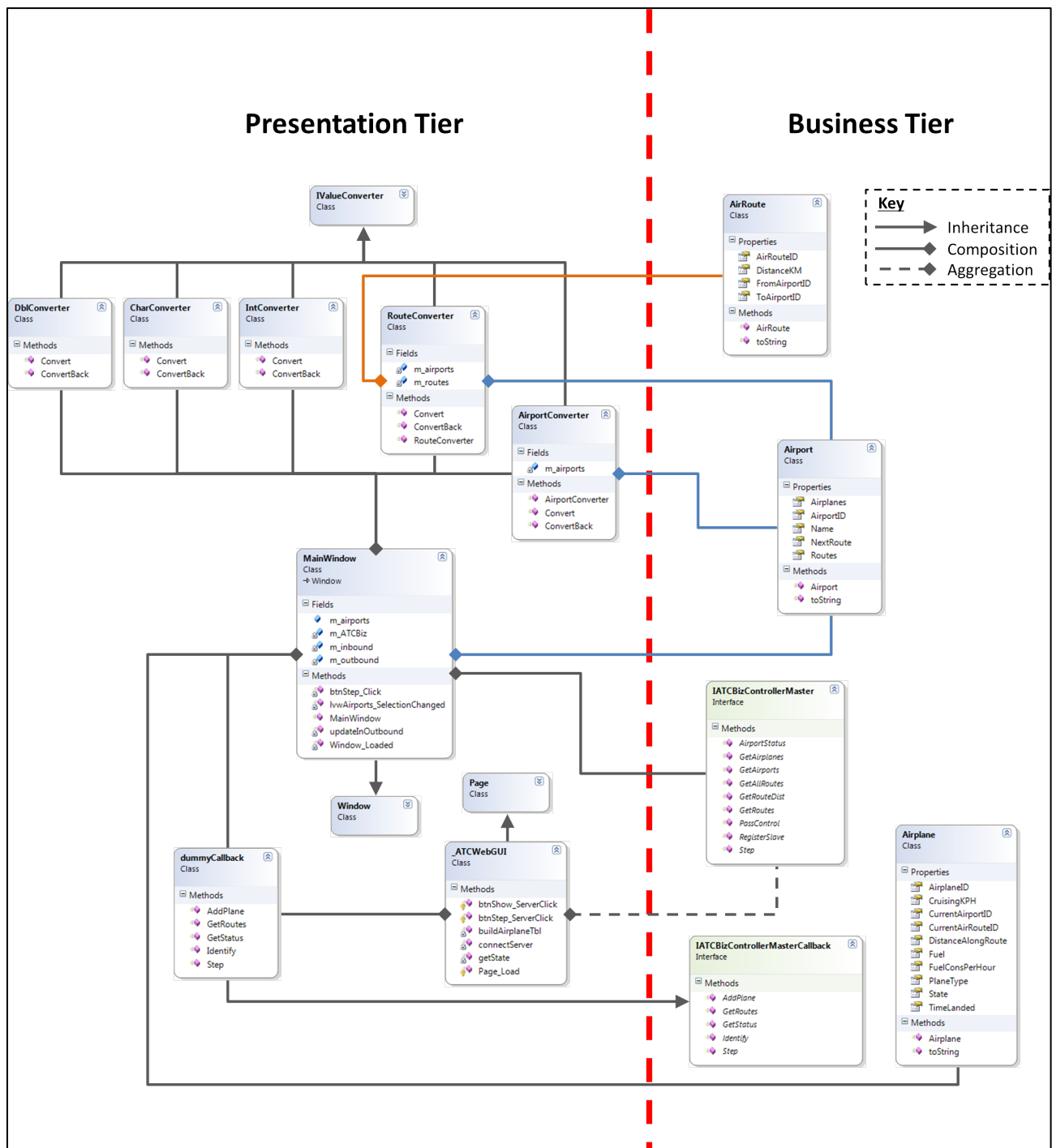
Presentation Tier **Business Tier**

IValueConverter
Class

AirRoute
Class
- Properties
  - AirRouteID
  - DistanceKM
  - FromAirportID
  - ToAirportID
- Methods
  - AirRoute
  - toString

Key
Inheritance
Composition
Aggregation

DblConverter
Class
- Methods
  - Convert
  - ConvertBack

CharConverter
Class
- Methods
  - Convert
  - ConvertBack

IntConverter
Class
- Methods
  - Convert
  - ConvertBack

RouteConverter
Class
- Fields
  - m_airports
  - m_routes
- Methods
  - Convert
  - ConvertBack
  - RouteConverter

AirportConverter
Class
- Fields
  - m_airports
- Methods
  - AirportConverter
  - Convert
  - ConvertBack

Airport
Class
- Properties
  - Airplanes
  - AirportID
  - Name
  - NextRoute
  - Routes
- Methods
  - Airport
  - toString

MainWindow
Class
→ Window
- Fields
  - m_airports
  - m_ATCBiz
  - m_inbound
  - m_outbound
- Methods
  - btnStep_Click
  - lvwAirports_SelectionChanged
  - MainWindow
  - updateInOutbound
  - Window_Loaded

IATCBizControllerMaster
Interface
- Methods
  - AirportStatus
  - GetAirplanes
  - GetAirports
  - GetAllRoutes
  - GetRouteDist
  - GetRoutes
  - PassControl
  - RegisterSlave
  - Step

Window
Class

Page
Class

Airplane
Class
- Properties
  - AirplaneID
  - CruisingKPH
  - CurrentAirportID
  - CurrentAirRouteID
  - DistanceAlongRoute
  - Fuel
  - FuelConsPerHour
  - PlaneType
  - State
  - TimeLanded
- Methods
  - Airplane
  - toString

dummyCallback
Class
- Methods
  - AddPlane
  - GetRoutes
  - GetStatus
  - Identify
  - Step

_ATCWebGUI
Class
- Methods
  - btnShow_ServerClick
  - btnStep_ServerClick
  - buildAirplaneTbl
  - connectServer
  - getState
  - Page_Load

IATCBizControllerMasterCallback
Interface
- Methods
  - AddPlane
  - GetRoutes
  - GetStatus
  - Identify
  - Step

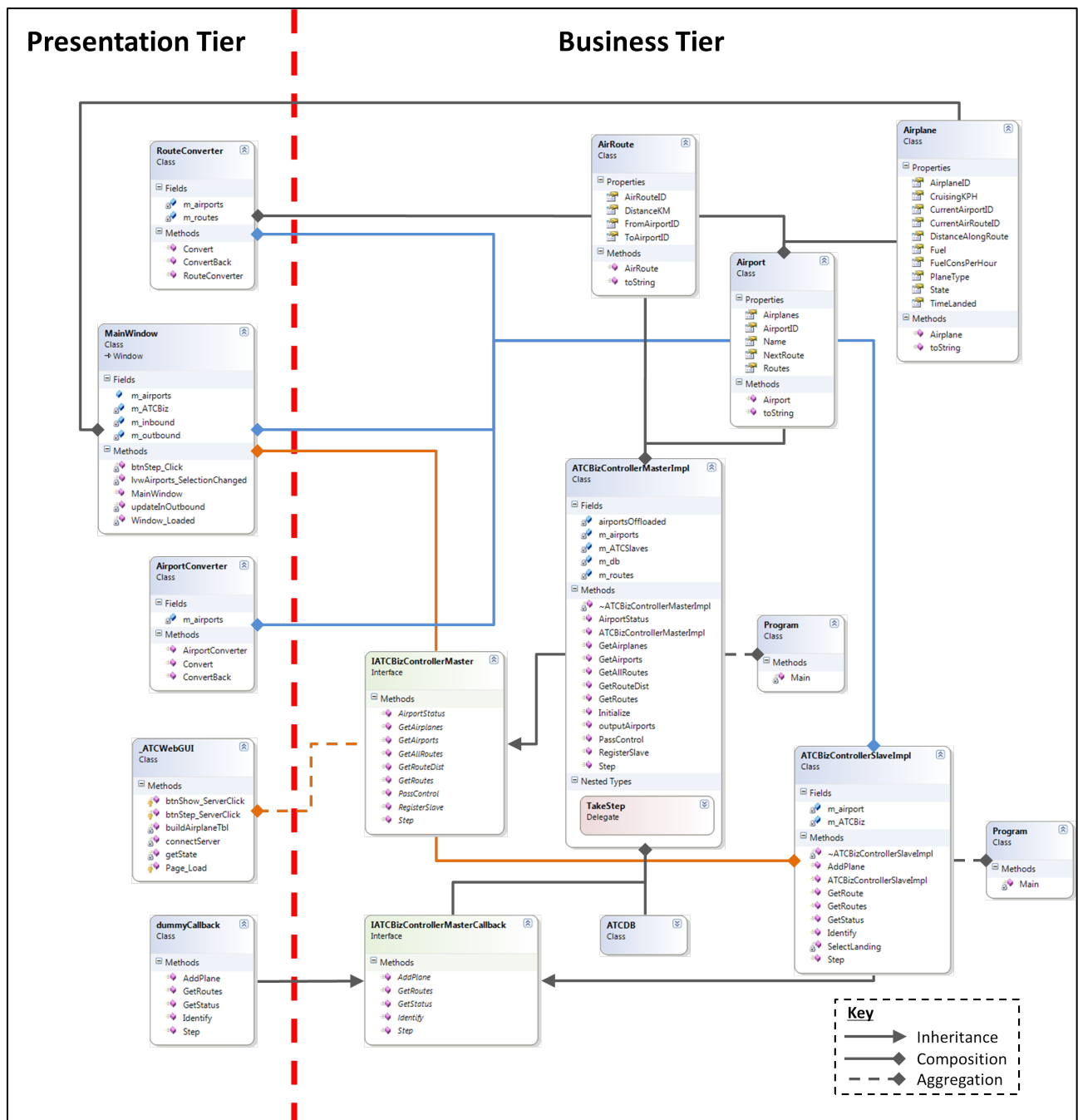Figure 2: UML Class diagram – Presentation tier

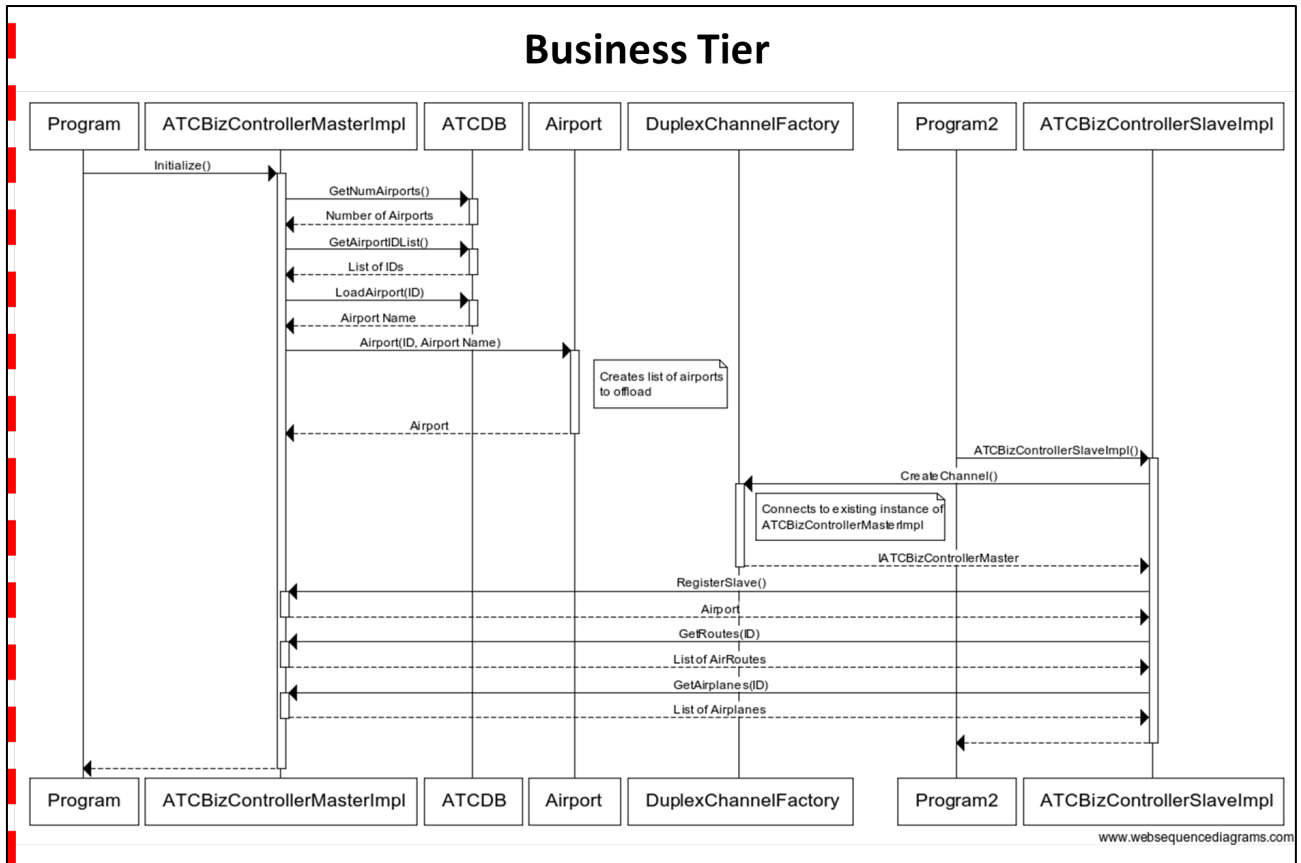Figure 3: UML Class diagram – Business tier

UML Sequence Diagrams

Figure 4: UML Sequence diagram – Slave start up and initialization.
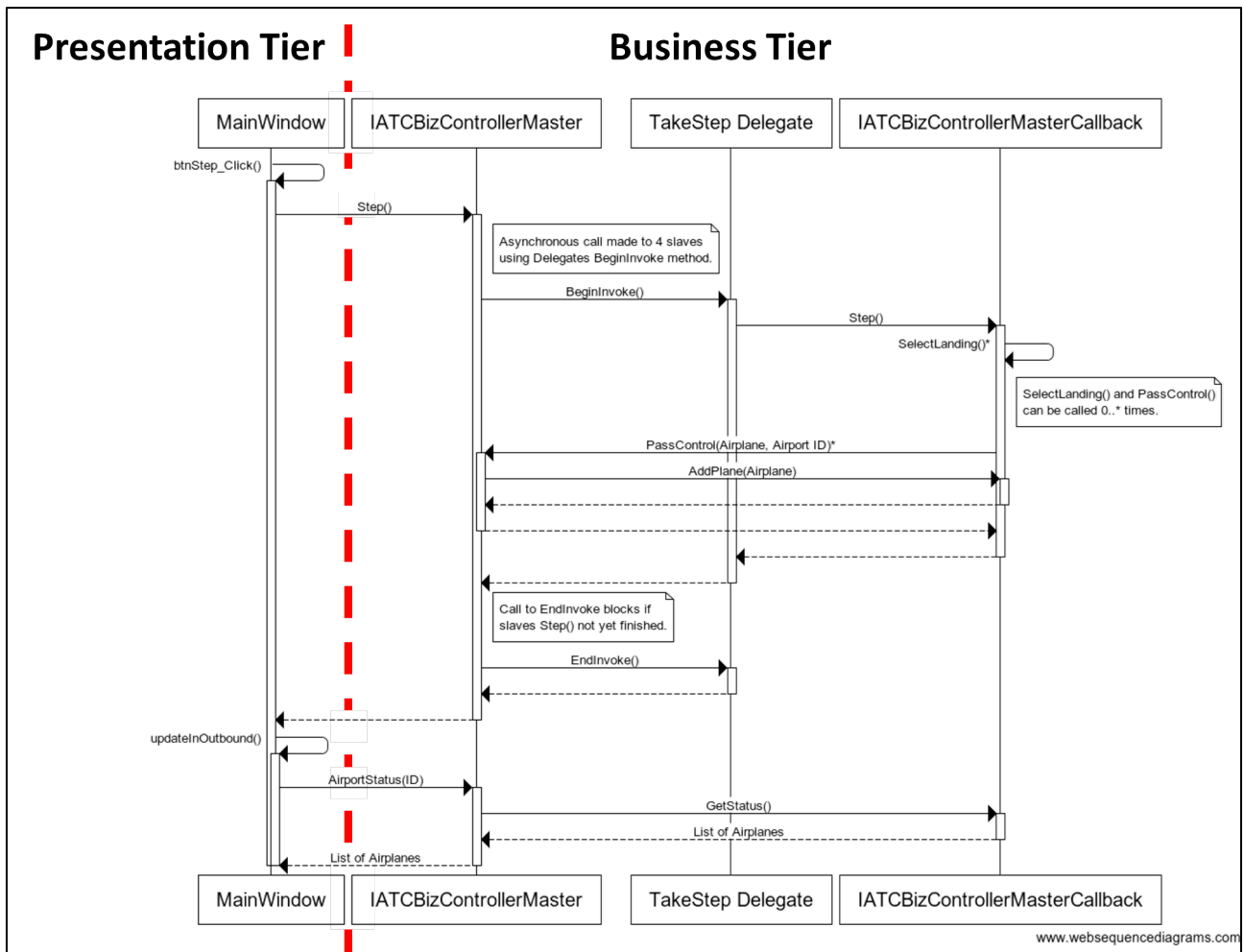
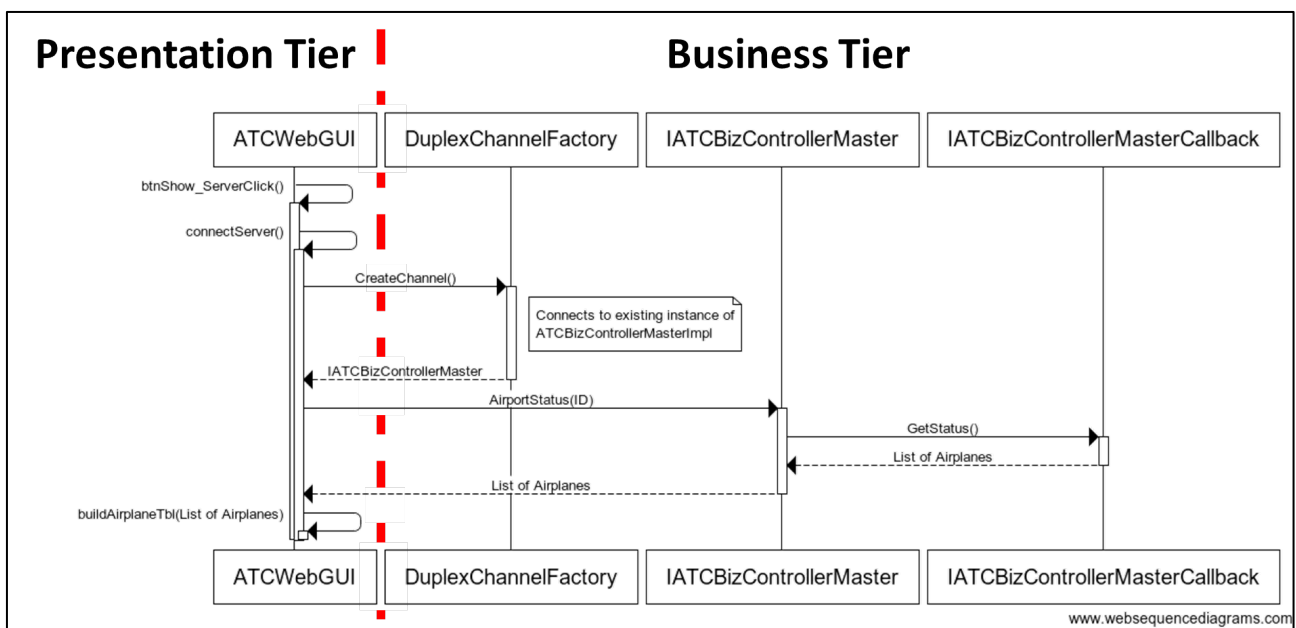Figure 5: UML Sequence diagram – Step into simulation with WPF GUI.

Figure 6 UML Sequence diagram – Displaying airplanes belonging to an airport in web GUI.