

Architecture Frameworks & Modeling



INCOSE • STEVENS



Enterprise & Systems Architecting Tutorial

Presented By: Dr. James Martin, Ph.D, INCOSE Fellow

Date: March 31 – April 1, 2011

Time: 8 AM - 5 PM

Location: Stevens Institute of Technology,
Babbio Centre, 1 Castle Point on Hudson, Hoboken, NJ 07030

RESERVATION: Contact Frank Salvatore at fsalvatore@hpti.com or 973-634-2957. **Space Limited to 30 people.**

Pay by credit card via PayPal, visit our website: <http://www.incose.org/liberty>

Pay by USPS, mail checks (payable to INCOSE-CC) to INCOSE Liberty Chapter P.O. Box 526 Whippany, NJ 07981.

All checks must be received NLT Friday, 25 March, please confirm availability with Frank at email above prior to mailing.

COST: \$225, Includes Continental Breakfast and Lunch

Cancellation Policy: If you make a reservation but are unable to attend, please notify us not later than COB Friday, 25 March, to avoid liability for payment for the tutorial.

INSTRUCTOR BIO: Dr. James Martin, Ph.D, INCOSE Fellow. Dr. James Martin is an internationally renowned writer and lecturer on systems engineering. He wrote one of the most widely read books on systems engineering, *Systems Engineering Guidebook*. His experience includes twenty years in systems development of telecommunications products (most with Bell Labs) as program manager, systems engineering manager, system architect, requirements manager, and lead systems engineer. His experience with technology includes mobile wireless, fiber optics, satellite broadband wireless, reconnaissance sensors and distribution networks, and airborne hubs. He led the development of ANSI/EIA 632, the national standard defining the processes for engineering a system. He teaches at The Aerospace Institute and at seminars around the world. Dr. Martin graduated with an M.S. from Stanford and a B.S. from Texas A&M. His Ph.D. research at George Mason University was on "Enterprise Architecture Modeling Using Knowledge Modeling."

ABSTRACT: Architecture frameworks and modeling are tools developed to meet the challenges of architecting modern systems. In particular, DoDAF, the "Department of Defense Architecture Framework," is an architecting tool that has been mandated by the DoD for large-scale systems. "Mandated" is easily understood, but some of the affectations of DoDAF are not so easily understood. The framework "...describes how the architecture for a system...should be documented. The framework breaks that documentation into three major views: operational, system, and technical, and one associated view, the all view. Each view contains one or more graphic, tabular, and descriptive representations of the system. Because using any framework for the first time can be difficult..." (news@sei website). According to the DoD Architecture Framework Version 2.0 (DoD document at defenselink.mil website), "Architectures within the Department of Defense are created for a number of reasons. From a compliance perspective, the DoD is compelled... to develop architectures. From a practical perspective, experience has demonstrated that management of organizations employing sophisticated systems and technologies in pursuit of joint missions demands a structured, repeatable method for evaluating investments and alternatives, implementing organizational change, creating new systems, and deploying new technologies." This tutorial provides an overview of the architecture frameworks and models with an emphasis on DoDAF; DODAF version 2.0 will be covered. The tutorial will show how a system's architecture serves as the basis for development of the system. This approach leads to a more model-driven systems approach and allows the systems engineers to "discover" the essential attributes of the problem space that must be addressed by the system solution. Architecture models define these essential attributes and facilitate their evaluation. The architecture provides the unifying structure (or roadmap) for exploration of the problem space and for characterization of the solution space such that better decisions can be made. This tutorial will describe an approach for the flow down from the system purpose or mission need, down through operational requirements and concept of operations, and finally into the operational, system, and technical views of the architecture. The products in the DOD Architecture Framework will also be described while highlighting the essential features of each.

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Directions

Stevens Campus is ideally located on the banks of the Hudson River directly opposite mid-town Manhattan.

<http://sse.stevens.edu/about-sse/visit-us/>

From New York City

Via Lincoln Tunnel

Upon exiting the tunnel, follow the signs to Hoboken. From the North tube of the tunnel, bear to the extreme right and go through the underpass marked Hoboken. From the South tube bear to exit ramp on left. This places you Southbound on Willow Avenue,. Continue over the land bridge into Hoboken and make a left at 14th Street, turn right onto Washington Street. Make a left on 9th Street and continue through the campus gates and follow the directions for Once on Campus below.

Via Holland Tunnel

Make the first right after exiting the tunnel onto Luis Munoz Marin Boulevard. Luis Munoz Marin Blvd which becomes Henderson Street. At the end of Henderson Street at Observer Highway turn right. Turn left (at the last traffic light on Observer Highway) onto Washington Street. Turn right onto 9th Street. Continue through the gates and follow the directions for Once On Campus below.

From Northern New Jersey and George Washington Bridge

Take the NJ Turnpike (I-95) South to the Lincoln Tunnel (I-495) Exit. Follow signs towards the Lincoln Tunnel and exit before the tunnel at the "Last Exit In New Jersey, Weehawken, Hoboken". Turn right at the second traffic light, this places you Southbound on Park Avenue. Follow signs to Hoboken. At 14th Street in Hoboken turn left and then turn right onto Washington Street. Make a left on 9th Street and continue through the gates and follow the directions for Once on Campus below.

From Upper New York State

Take the New York State Thruway to the Garden State Parkway South. to Exit 153 and take Route 3 East towards the Lincoln Tunnel. Exit before the tunnel at the "Last Exit In New Jersey, Weehawken, Hoboken" and turn right at the second traffic light. This places you Southbound on Park Avenue. Follow signs to Hoboken. At 14th Street in Hoboken turn left and then turn right onto Washington Street. Make a left on 9th Street and continue through the gates and follow the directions for Once on Campus below.

From Points West and North West of Hoboken

Via Interstate 80 from points West of Interstate 287

Take I-80 East to I-287 South. Take I-287 to Route 24 East. Route 24 East will merge into I-78, Take I-78 East (Express or Local) and follow the directions from "Via Interstate 78" below.

Via Interstate 80 From Points East of Interstate 287 and West of Interstate 280

Take I-80 East and merge onto I-280 East at exit number 47A (on the left) toward "The Oranges/Newark". Exit I-280 onto the New Jersey Turnpike North. Take the New Jersey Turnpike to the Lincoln Tunnel exit. Follow signs towards the Lincoln Tunnel but do not enter the tunnel, exit at the sign marked "Last Exit in New Jersey, Weehawken, Hoboken", and turn right at the second traffic light. This places you Southbound on Park Avenue. Follow signs to Hoboken. At 14th Street in Hoboken turn left and then turn right onto Washington Street. Make a left on 9th Street and continue through the gates and follow the directions for Once on Campus below.

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From Points West and North West of Hoboken

Via Interstate 80 From Points East of Interstate 280

Take I-80 East to New Jersey Turnpike South (I-95) and follow directions above "From Northern New Jersey and George Washington Bridge".

Via Interstate 78 Take I-78 East to the New Jersey Turnpike. Follow signs to the Holland Tunnel exit 14C. When the turnpike ends, after the Exit 14C toll, make a left at the first traffic light onto Jersey Avenue towards Hoboken. Proceed under the train bridge bearing right onto Newark Street which will become Observer Highway. Turn left (at the last traffic light on Observer Highway) onto Washington Street. Turn right onto 9th Street. Continue through the gates and follow the directions for Once on Campus below.

From Points South West of Hoboken and Newark Liberty Airport

Take Route 1&9 North onto the Pulaski Skyway (trucks cannot take the Pulaski Skyway and should remain on Route 1&9 Truck North) and follow signs to Holland Tunnel. After proceeding under the covered portion of State Highway, at the first traffic light, make the first left onto Jersey Avenue towards Hoboken. Proceed under the train bridge bearing right onto Newark Street which will become Observer Highway. Turn left (at the last traffic light on Observer Highway) onto Washington Street. Turn right onto 9th Street. Continue through the gates and follow the directions for Once on Campus below.

From Points South of Hoboken Via the Garden State Parkway

If South of the New Jersey Turnpike Exit on the Garden State Parkway take the Parkway to the New Jersey Turnpike and follow the "Via the New Jersey Turnpike" directions below. If North of the New Jersey Turnpike Exit and South of Interstate 78 take the Parkway to the I-78 Exit and follow directions "Via Interstate 78" above. Via the New Jersey Turnpike Take the New Jersey Turnpike to Exit 14C and follow signs to the Holland Tunnel. When the turnpike ends at the first traffic light make a left onto Jersey Avenue towards Hoboken. Proceed under the train bridge bearing right onto Newark Street which will become Observer Highway. Turn left (at the last traffic light on Observer Highway) onto Washington Street. Turn right onto 9th Street. Continue through the gates and follow the directions for Once on Campus below.

Once on Campus

After entering campus, via 9th street, proceed through the gates to the traffic circle in front of the Wesley J. Howe Center (13-story building). Temporary parking is permitted on the circle while obtaining a parking permit at the lobby desk.

To drive directly to the Babbio Center

Proceed along Washington Street to 5th Street. Drive up 5th, turn left on River Street and proceed to 6th Street. The Babbio Center is the new building on your right.

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Parking

Stevens Campus is ideally located on the banks of the Hudson River directly opposite mid-town Manhattan.

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On-Campus parking is limited, especially when classes are in session. Public parking garages are available on Hudson Street with reasonable fees in close proximity to campus.

If you decide to park on the street in Hoboken, pay very close attention to the parking signs. Parking in Resident Only spaces, streets scheduled for cleaning, or parking for over the four-hour visitor limit will result in your car being ticketed, booted or towed.

Municipal Garages:

B (at Second Street, between River and Hudson)

D (at 215 Hudson Street, between 2nd and 3rd)

G (at 315 Hudson Street, between 3rd and 4th)

Rates:

Up to 1 hour: \$3.00

Up to 2 hours: \$4.00

Up to 4 hours: \$7.00

Up to 6 hours: \$10.00

Walking Directions to Campus from Hudson Street Parking Garages:

Proceed to Hudson Street and turn right onto Hudson. At Fourth Street, you will come to a park. Cut diagonally through the park, on the other side, on Fifth Street, is the Edwin A. Stevens and McClean Buildings. There is a campus map on River Street side of the Edwin A. Stevens building or view an online Campus Parking Map.