As the industry moves to more mature software processes (e.g., CMMI) there is increased need to adopt more rigorous, sophisticated (i.e., quantitative) metrics. While quantitative product readiness criteria are often used for business cases and related areas, software readiness is often assessed more subjectively & qualitatively. Quite often there is no explicit linkage to original performance and reliability requirements for the software. The criteria are primarily process-oriented (versus product oriented) and/or subjective. Such an approach to deciding software readiness increases the risk of poor field performance and unhappy customers. Unfortunately, creating meaningful and useful quantitative in-process metrics for software development has been notoriously difficult.

This presentation describes novel and quantitative software readiness criteria to support objective and effective decision-making at product shipment. The method organizes and streamlines existing quality and reliability data into a simple metric and visualizations that are applicable across products and releases. The methodology amalgamates two schools of thoughts in quantitative terms: product and process parameters that have been adequately represented to formalize the software readiness index. Parameters from all aspects of software development life cycle (e.g., requirements, project management & resources, development & testing, audits & assessments, stability and reliability, and technical documentation) that could impact the readiness index are considered.

**Abhaya Asthana** is a Bell Labs Fellow with Alcatel-Lucent where he has performed R&D in the area of End to End system & solutions, reliability engineering, converged network systems, computer architecture, IMS, IPTV, wireless systems, optical networks and VLSI design. He led the design of VLSI systems at INTEL from 1982-1985 and was on the faculty of IIT Kanpur in 1984. Dr. Asthana received his Bachelor's degree in Electrical engineering from I.I.T. Kanpur in 1970, and his Doctorate degree from Tulane University in 1974.

**Jack Olivieri** is a Lead Multi-Discipline System Engineer with the MITRE Corporation in the Command and Control Center (C2C) where he is responsible for support of reliability specification and analyses efforts on various defense projects for the Air Force. Previously, he worked at Alcatel-Lucent from 1998-2009 as a Reliability Tech Manager and performed DFR activities on ATM/IP switches, media gateways, and optical platforms. He holds a BA in Mathematics from Boston College and an M.S.S.E. from the University of Massachusetts.
Quantifying Software Reliability and Readiness
by: Jack Olivieri and Abbaya Asthana

Tuesday December 15, 2009
6:30 PM – Networking and Pizza(*)
7:00 - 8:00 PM – Program

(*) There is no cost to attend at McLean and Silver Spring.

Locations:
The presentation will originate at the Bedford facility, with video tele-conferencing (VTC) between:

*Eatontown will not participate this month.*  Note the new building and room at the FDA.

<table>
<thead>
<tr>
<th>Location</th>
<th>Room</th>
<th>Address</th>
<th>Host</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>MITRE</td>
<td>0N100</td>
<td>7515 Colshire Drive, McLean, VA 22102</td>
<td>Scott Ankrum</td>
<td>cell: 240-731-7581</td>
</tr>
<tr>
<td>FDA</td>
<td>G512</td>
<td>10903 New Hampshire Ave, Silver Spring, MD 20993</td>
<td>James Simpson</td>
<td>cell: 240-429-3912</td>
</tr>
<tr>
<td>MITRE</td>
<td>1002</td>
<td>260 Industrial Way West, Eatontown, NJ 07724</td>
<td>Richard Eng</td>
<td>cell: 703-201-9112</td>
</tr>
<tr>
<td>MITRE</td>
<td>1M306</td>
<td>202 Burlington Rd (Rt. 62), Bedford, MA 01730</td>
<td>Tim Rice</td>
<td>cell: 978-758-2704</td>
</tr>
</tbody>
</table>

*If you can host another location via VTC, please contact Scott Ankrum (below)*

Note: Beginning with the October meeting, there will no longer be a free (800) dial-in number for remote users. We will experiment with Skype. Please provide your Skype ID in the telephone field when registering.

Registration:

You must register by noon on Monday, December 14.

If you cannot attend at any location, select telephone dial-in when you register.

To RSVP for FDA (Silver Spring), please indicate citizenship. If not a US citizen, please provide your title, employer, and address. Allow two business days for registration before the meeting.

For registration problems or further information contact Scott Ankrum at: ankrums@mitre.org or 703-983-6127

Software SIG Chairman: T. Scott Ankrum (ASQ & IEEE)
Software SIG Committee: Richard Eng (ASQ); Chris Jones (ASQ & SSQ); Alfred Kromholz (SSQ); Tim Rice; James M. Simpson (ASQ); Tom Starai (IEEE), Tom Neff (IEEE)

Sponsored Jointly By: The American Society for Quality (ASQ), Washington DC & Maryland Metro Section (509), Software Special Interest Group (SSIG); IEEE Computer Society, Washington, DC & Northern Virginia Chapters; and Society for Software Quality (SSQ), Washington, DC Area Chapter.

Members of the [ASQ SSIG](http://www.asq509.org/ht/d/sp/i/2499/pid/2499) include software quality professionals, software engineers, and others interested in applying quality principles to the field of software development. See our web page: [http://www.asq509.org/ht/d/sp/i/2499/pid/2499](http://www.asq509.org/ht/d/sp/i/2499/pid/2499). We meet every month, usually at the MITRE facility in Tyson’s Corner, Virginia, with VTC to other locations.
Directions to the MITRE Facility in McLean, Virginia:
Take the Beltway, I-495 to Virginia. Take Exit 46B (McLean, Route 123). Take Route 123 North, 
(also called Dolley Madison Blvd.) and go to the second traffic light at Colshire Drive. Turn right on 
Colshire Drive and continue through circle on Colshire. **Park in front of or to the right of the 
bUILDINGS, before passing the gate. (The gates are closed at 7:00)**. Additional directions can be 
found at: [http://www.mitre.org/about/locations/mitre1_map.html](http://www.mitre.org/about/locations/mitre1_map.html)
Directions to the FDA facility in Silver Spring, MD:

From the Capital Beltway, I-495, take New Hampshire Ave, Rt 650 north to Michelson Rd.

From Columbia Pike, Rt 29, take New Hampshire Ave, Rt 650 south to Michelson Rd.

White Oak Building 66 (circled), room G512. This is a large conference room just beyond the Security desk on the right side of the grand atrium.

After 6 PM, visitors may use the surface parking closest to the building 66 entrance which are reserved for commuters with car pools. The north east parking garage is also an option.
Directions to the MITRE Facility in Eatontown, New Jersey:

From the New Jersey Turnpike: If traveling from the SOUTH, get off the Turnpike at Exit 7A (195 toward Shore Points). Take 195 East towards the ocean and shortly after 195 turns into Route 138 (approximately 35 miles) watch for Route 18 North (Eatontown). Take Route 18 North to Exit 13A (Wayside West/Wyckoff Road). At end of ramp, bear left. At first traffic light (Hope Road) make a left turn. Make second left turn onto Industrial Way. The MITRE Corporation is next to the First Atlantic Credit Union on the left hand side of Industrial Way. There is a MITRE sign out front. There are two buildings on the left side of Industrial Way. The first building is MITRE, the second building is TYCO. Take a left turn into the parking lot of the first building, which is MITRE.

If traveling from the NORTH, get off the Turnpike at Exit 11 (Garden State parkway exit). Follow the Garden State Parkway until Exit 105 (Eatontown). Follow the directions from the Garden State Parkway below.

From the Garden State Parkway: Follow the Garden State Parkway from the North or from the South to Exit 105 (the exit numbers increase going from south to north). After paying the toll at Exit 105, make first right turn onto Hope Road. Follow Hope Road to Industrial Way (second left turn after crossing Wyckoff/Shaflo Road). Make second left turn onto Industrial Way. The MITRE Corporation is next to the First Atlantic Credit Union on the left hand side of Industrial Way. There is a MITRE sign out front. There are two white buildings on the left side of Industrial Way. The first building is MITRE, the second building is TYCO. Take a left turn into the parking lot of the first building, which is MITRE.

When you are facing the front of the MITRE building, the entrance to the ASQ meeting will be from the left parking lot opposite First Atlantic bank. Follow the signs to the conference room.
Directions to the MITRE complex in Bedford, Massachusetts:

From New Hampshire to MITRE Complex:
Take Route 3 South to Exit 26 (Route 62)
Turn Left on Route 62. It is a short distance to the MITRE entrance on left--watch for building directories on MITRE grounds

From Manchester Airport (NH) to MITRE Complex:
Start out going West on Airport Rd. toward parking
Turn slight right onto Brown Ave/NH-3A
Merge onto NH-101 West via the ramp on the left toward Bedford/Nashua
Take the Everett Turnpike South exit toward Merrimack/Nashua
Merge onto Everett Turnpike (toll road)
Everett Turnpike becomes US-3 South
Take exit 26 (Route 62) toward Bedford/Burlington
Turn Left onto (Route 62) Burlington Road
At second set of traffic lights, turn left at MITRE Bedford Campus entrance--watch for building directories on MITRE grounds.

Logan Airport to MITRE Complex:
Exit airport towards Route 1A South/Sumner Tunnel (I-93) Boston.
Proceed through tunnel towards Storrow Drive (I-93 North).
Take I-93 North eleven miles to Exit 37B (Route 128 (I-95) South).
Take Route 128 (I-95) South six miles to Exit 32A.
Take Exit 32A, and proceed on Route 3 North.
Take Route 3 North for two miles to Exit 26 (Route 62).
Bear right on Route 62.
Take Route 62 a short distance to the MITRE Bedford Campus entrance on left--watch for building directories on MITRE grounds.