PEA Job Description

1. Position Identification

Position Number: 992901, 993472, 994119, 994206, 994380
Position Title: Senior Software Developer
Department: Ocean Networks Canada
Reports to: Associate Director, Software Engineering
Number of Direct/Indirect Reports: Direct 0, Indirect 0
Classification Level: SG 13
Current Incumbent (if applicable):
Last Updated: March/2017

2. Position Summary

Ocean Networks Canada (ONC) is a world-leading organization supporting ocean discovery and technological innovation. ONC is a not-for-profit society that operates and manages innovative cabled observatories on behalf of the University of Victoria that supply continuous power and Internet connectivity to various scientific instruments located in coastal, deep-ocean, and Arctic environments. ONC’s cable arrays host hundreds of sensors distributed in, on and above the seabed along with mobile and land-based assets strategically located, instruments that address key scientific and policy issues (subsea earthquakes and tsunamis, ocean acidification, marine biodiversity, etc.) within a wide range of environments.

ONC’s User Engagement Division is responsible for supporting and growing ONC’s scientific and research user communities through direct support for new and ongoing user research initiatives on the one hand, and education, development of data products and other web-based data access and visualization tools on the other. As part of the User Engagement Division, the Software Engineering group, under the guidance of its stakeholders delivers software that empowers users in accomplishing complex tasks, in dealing with data volumes of increasing size and complexity.

The Senior Software Developer (Senior Developer) works as part of a team of developers to design, develop, troubleshoot, maintain and deploy software components for acquiring, publishing and processing data using ONC’s data management and archiving system – Oceans 2.0. The Senior Developer will be involved in the development of software using a wide spectrum of technologies, from mobile to cloud computing.

The Senior Developer reports to the Associate Director Software Engineering (Associate Director) with work assigned on a project basis. This position leads scrum meetings, documentation and code reviews using their technical experience, knowledge of software lifecycle and development models, and experience with Agile project management and scrum leadership, to support the software development process. The Senior Developer works closely with the Senior Testing Engineer to create automated testing frameworks.

3. Key Responsibilities and Expectations

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<th>Key Responsibilities. % of time</th>
<th>Expectations:</th>
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<tr>
<td>Leadership 30%</td>
<td>Leads software development projects of a high level of size and complexity</td>
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<td>Leads design sessions, presents design solutions and designs new, innovative, leading edge features and functionality based on user requirements</td>
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<td>Provides training, leadership and technical guidance to junior and intermediate developers and students on development</td>
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| Software design and development 60% | • Works with a cross functional team to identify and refine user requirements  
• Collaborates with Senior Software Testing Engineers to create automated test suites for Oceans 2.0 software  
• Develops effective, maintainable code within defined project timelines  
• Reviews software to identify weak spots and opportunities to improve coding  
• Deploys successfully tested software and prepares deployment notes and user manuals  
• Implements Web user interface and interaction elements  
• Contributes to software development best practices  
• Participates in software maintenance and design improvements  
• Collaborates with Staff Scientists regarding end-user requirements for the use, retrieval and analysis of ONC data  
• Supports the Science staff's interaction with external contacts, including individual researchers and research organizations by providing content expertise for data acquisition and distribution through Oceans 2.0  
• Conducts site visits to science and research clients  
• Completes projects as assigned by the Associate Director  
• Develops, maintains, and documents software developments using established templates  
• Maintains a database of problem reports and new developments (using the Jira tool) |
| Other duties 10% | • Stays up to date with current and emerging technologies and programs for coding development and design processes  
• Analyses research papers and ONC publications to understand the context in which ONC operates and the application of the data managed by the Digital Infrastructure group |

4. **Classification Factors:**

**Problem-Solving:**

Critical and in-depth analysis, sound judgment, and creative problem-solving are essential attributes of the Senior Developer. The Senior Developer is required to interpret, evaluate, and adapt procedures in order to find and repair bugs and arrive at solutions that are unanticipated. Innovative approaches are required when traditional resolution methods have been exhausted. In-depth analysis involves the synthesis of information to make recommendations. The projects assigned to the this position are of a large size and high complexity, as compared to the assignments taken on by junior and intermediate developers within the Software Development team.

**Responsibility for Financial & Material resources:**

This position does not have responsibility for budget or materials expenditures, but has shared responsibility for design, implementation and maintenance of software components.

**Responsibility for Human Resources:**

The Senior Developer works very closely with others in the Software Development team, and may be responsible for supervising students on short term appointments. This position will provide ongoing guidance, support & mentorship to both Junior and Intermediate Software Developers in all aspects of the software development cycle. The position receives minimal supervision from the Associate Director, performs assignments independently to conclusion, and
only unusual problems are referred to the Associate Director.

**Impact of Decisions and Actions:**

The Senior Developer plays a key role in the success of the Software Development team, which functions as a service delivery department to a broad, global user base. The position directly impacts the efficiency of the department, and therefore impacts the department's ability to achieve the strategic objectives of ONC and to satisfy internal and external stakeholders. The Senior Developer will make technical decisions and recommendations to users and supervisory personnel, and will on a project-by-project basis assume leadership on software development projects.

**Independence:**

The Senior Developer will exercise independent decision making with regard to their software design and development projects. The projects assigned to this position are of a large size and high complexity, as compared to other assignments within the Software Development team. The Senior Developer is expected to identify and raise any technology issues and associated risks, and lead the progress towards resolving those issues.

**5. Summary of qualifications:**

The Senior Developer must have a university degree in computer science or software engineering, and a minimum of six years of related experience, or an equivalent combination of education and experience.

**Experience Requirements:**

- Proven ability to write design, build, test and debug software
- Demonstrated proficiency in the following technologies: J2EE, JavaScript, HTML, XML, SQL
- Experience in object-oriented design and implementation

**Knowledge Requirements:**

- Relational database management systems such as Oracle or MySQL
- Software lifecycle and Agile methodologies such as Scrum
- Web services and service-oriented architectures
- Web 2.0 and mashups

**Competencies:**

- Ability to work independently and proactively within a team-oriented environment
- Excellent written and verbal communication skills
- Excellent problem solving skills
- Ability to learn new technologies

**Highly desired assets:**

- Familiarity with the Eclipse development environment and with tools such as Velocity and Hibernate as would be some knowledge of the messaging system.
- UNIX skills
- Bash or other scripting language
- Experience installing and configuring software packages
- ActiveMQ troubleshooting/knowledge
- Experience in scientific data processing MATLAB, R, SciPy, data visualization, statistics, time series analysis, and analytical science in general.
- Test automation
- Familiar with JUnit testing

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**Employee’s Signature:**

**Date:**
| Manager’s/Supervisor’s Signature | Date: |