



**NATIONAL INSTITUTE OF TECHNOLOGY
ROURKELA-769008 (ODISHA)**
(An Institute of National Importance under Ministry of HRD, GOI)

NOTICE INVITING TENDER

Tender Notification No: NITR/PW/EC/2019/116

Dated: 10/05/2019

The National Institute of Technology, Rourkela invites bids from the eligible bidders for procurement of **Software and Service Requirement: fog infrastructure management and application orchestration software for video analytics use-case** at NIT Rourkela.

Last date of Submission of Bid : **31/05/2019 at 11:00 AM**

Opening date of Techno-commercial Bid : **03/06/2019 at 11:00 AM**

For Details: http://nitrkl.ac.in/OldWebsite/Jobs_Tenders/9Equipment/Default.aspx

Contact: Dr. Santos Kumar Das, (Assistant Professor)

Department of ECE; Ph.: 0661-2462466

Email ID: dassk@nitrkl.ac.in

Bidding through: <https://eprocure.gov.in/eprocure/app>

**sd/-
REGISTRAR**



**NATIONAL INSTITUTE of TECHNOLOGY
ROURKELA – 769 008, ODISHA**

(OPEN TENDER NOTICE NO.: NITR/PW/EC/2019/116

Date: 10/05/2019)

(Procurement of fog infrastructure management and application orchestration software for video analytics use-case at NIT Rourkela)

Item No	DESCRIPTION	Quantity
1	Software and Service Requirement: The Fog infrastructure management and application orchestration software for video analytics use-case (As per the specification mentioned in Annexure-I)	1 Unit

1. **Quantity required Delivery: As mentioned above (All information provided in technical specification)**
2. **Delivery: Within 30 days from the date of purchase order.**
3. **Last Date of submission of Tender : 31/05/2019 at 11:00 AM**
4. **Date of opening of Techno-commercial bid : 03/06/2019 at 11:00 AM**
5. The firm should not have been black listed at any time.
6. The submission of following bids by the tender should be through <https://eprocure.gov.in/eprocure/app>
7. Please follow the guidelines as per the portal.

(Open Tender Notice No.: NITR/PW/EC/2019/116, dated: 10/05/2019) Due on 31/05/2019 at 11:00 AM

8. Liquidated damage clause will be charged for any delay in supply of goods.
9. The validity of the tender shall be **90 days** from the date of opening of the bids.
10. Detailed advertisement including all tender documents is also available in our website at http://nitrkl.ac.in/OldWebsite/Jobs_Tenders/9Equipment/Default.aspx.
11. NIT reserves the right to qualify or deny pre-qualification of any or all applicants without assigning any reasons.

**(REGISTRAR)
NIT, Rourkela
Fax No- 0661-2462022
Ph. No -0661-2462021**

Detailed technical specification purchase of fog infrastructure management and application orchestration software for video analytics use-case.

OBJECTIVE

NIT Rourkela is working on an automated mechanism to detect vehicular accidents, criminal or suspicious movement if individuals with the intent to reduce loss of property, life, ease traffic and create a safe environment for citizens. Formal measurement of traffic loads, tracking individual movements and suspicious behavior would be the first step towards this process. Analyzing video stream from a camera at tactical and strategic locations, via machines (using appropriate computer vision algorithms) is an essential part of the solution. The raw camera feed must be analyzed by the computer algorithms, running on a compute infrastructure. NIT Rourkela is realized to set up a **scalable compute facility (Fog Compute model)**, at the campus command control center, which can act as a compute infrastructure platform for anyone (faculty, students and external vendors) to run the video analytics computer algorithms, on the video feeds. The video analytics would provide rightful insight about the traffic, which can be further used for analysis vehicular traffic with the intent to reduce accidents.

The compute facility supports infrastructure to execute and run

- Video and sensor data analytics
- Video data capturing and storing in fog compute database
- For video data basic objective is to classify the video/CCTV footage based on activities and displaying and alerting the necessary clips separately, example anything related to crime/abnormal behavior, that needs to find out from the CCTV/video footage then separate it out.
- Real-time traffic monitoring through CCTV/IP camera
- Software needs to help in activity based searching information from the fog compute database through apps/website.

Maintaining utmost uptime, ease of maintenance and control of fog compute facility is one of the very critical aspect for the successful operation of the facility itself.

A fog controller software must support organic scaling of fog compute starting with very basic single server compute to multiple compute nodes, storage nodes and GPU resources. Hence identifying and procuring the fog controller software is essential.

Technical Specification for Fog Infrastructure controller & management Software:

- The software should orchestrate, manage and control the Fog compute facility.
- The software must allow the industry standard way to instantiate compute virtual machines to run the video analytics software.
- The software must support general purpose CPU, GPU, storage and communication infrastructure.
- The software should provide Single console access to Admin (NIT Rourkela) and DevOps(students/faculty) based on login credentials.
- The software should provide compute (CPU, GPU) isolation across multiple users.
- The software should provide layer 2 level traffic isolation across multiple users.
- The software should provide support for IaaS (VM's)
- The software should provide support for orchestration of containerized applications.
- The software should provide support for industry-standard hardware.
- The software should provide secured remote access to Fog compute.
- The software should provide admin Functionalities as:
 - Manage hardware infrastructures, add, remove and modify
 - Create DevOps credentials
- The software should provide DevOps functionalities
 - Self-Service portal for the creation of VM
 - API for creation of VM
 - Standardized API as per available openstack.org and openfogconsortium.org specifications
 - Ability to connect to VM, remotely over the internet
 - Bring up and bring down containerized applications
- The software should provide enhanced Reliability of the fog compute infrastructure, with machine assisted troubleshoot and fix faults/failures.
- The software should provide a unified view of system uptime across Fog compute
- The software should provide a summary view of system health, based on learned SLA.
- The software should provide a unified approach to orchestrate application on Fog and Edge computing [Eg. LPU].
- The software should provide reduced operational expense, with single point control for multiple fog compute infrastructure.

Service:

A minimum service of **3 years** is required for the software, which should include upgrades and scope for additional features on requirement basis.