

# Simulation for DTN in NS3 with Time-Expanded-Graph and Contact-Graph Routing

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## 1 Abstract

## 2 overview

## 3 purpose

The main purpose of this paper is comparing the performance of two routing algorithm, time-expanded graph routing(or space-time graph)[1] and contact graph routing[2] in a networking simulation framework, ns3. To achieve that, we implement a dtn software with the most fundamental feature like 'carry and delivery', 'neighbor finding', 'retransmission' etc. This simulation would be able to let later user to define their node-moving senario and bundle schedule plan.

## 4 simulation module

### 4.1 Time-expanded graph module

### 4.2 Contact graph module

### 4.3 Simulation procedure

```
In [16]: alt text](./0022.png "procedure of simulation")
```

Figure-1

```
File "<ipython-input-16-3fd3322d2e91>", line 1
alt text](./0022.png "procedure of simulation")
      ^
SyntaxError: invalid syntax
```

## **5 analysis of simulation result**

## **6 conclusion**

### **References**

- [1] Shashidhar Merugu, Mostafa Ammar, and Ellen Zegura. Routing in Space and Time in Networks with Predictable Mobility. (ii):1–13, 2004.
- [2] Edward Birrane, Scott Burleigh, and Niels Kasch. Analysis of the contact graph routing algorithm: Bounding interplanetary paths. *Acta Astronautica*, 75:108–119, 2012.