

SDLE

Grupo

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Motivação



The background of the slide features a complex, abstract network graph composed of numerous dark grey circular nodes and thin grey lines representing connections. Some nodes are highlighted with larger circles. In the upper right quadrant, several white triangles are scattered across the white space.

2

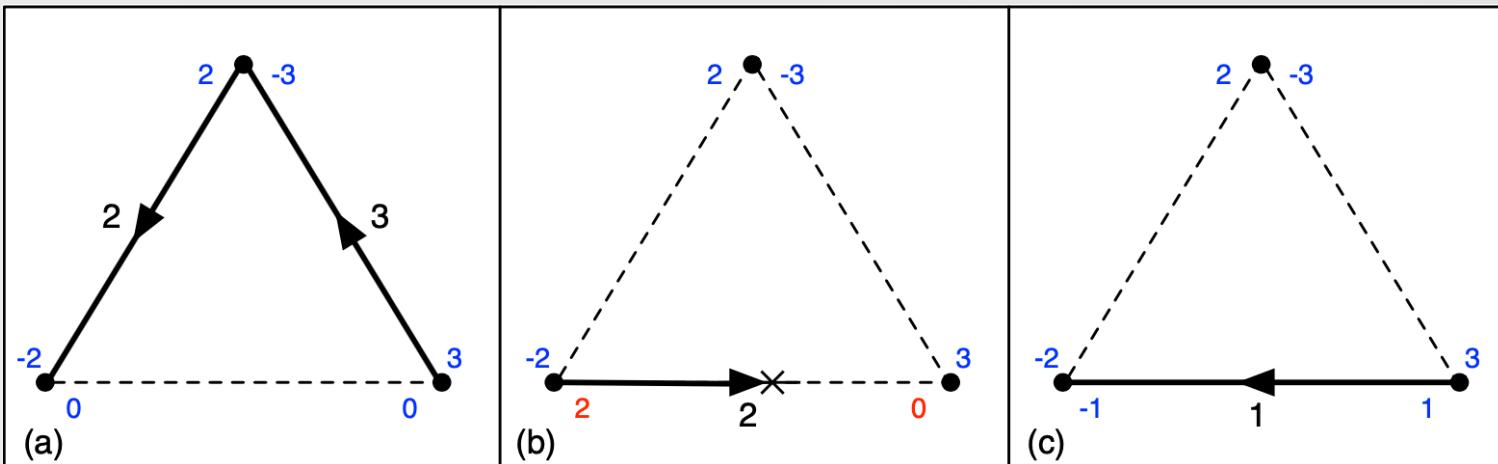
Algoritmo

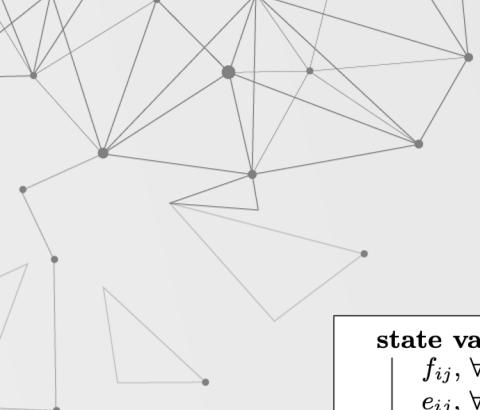
Flow Updating



Algoritmo

Flow Updating





Algoritmo

Flow Updating

state variables:

$f_{ij}, \forall j \in \mathcal{D}_i$, flows, initially $f_{ij} = 0$
 $e_{ij}, \forall j \in \mathcal{D}_i$, estimates, initially $e_{ij} = 0$
 v_i , input value

message-generation function:

$\text{msg}(i, j) = (f_{ij}, e_{ij}), \forall j \in \mathcal{D}_i$

state-transition function:

forall (f_{ji}, e_{ji}) received do

- $f_{ij} \leftarrow -f_{ji}$
- $e_{ij} \leftarrow e_{ji}$
- $e_i \leftarrow \frac{\left(v_i - \sum_{j \in \mathcal{D}_i} f_{ij}\right) + \sum_{j \in \mathcal{D}_i} e_{ij}}{|\mathcal{D}_i| + 1}$

forall $j \in \mathcal{D}_i$ do

- $f_{ij} \leftarrow f_{ij} + (e_i - e_{ij})$
- $e_{ij} \leftarrow e_i$

Broadcast

state variables:

$f_{ij}, \forall j \in \mathcal{D}_i$, flows, initially $f_{ij} = 0$
 $e_{ij}, \forall j \in \mathcal{D}_i$, estimates, initially $e_{ij} = 0$
 v_i , input value
 k , chosen neighbor

message-generation function:

$\text{msg}(i, k) = (f_{ik}, e_{ik})$

state-transition function:

forall (f_{ji}, e_{ji}) received do

- $f_{ij} \leftarrow -f_{ji}$
- $e_{ij} \leftarrow e_{ji}$
- $e_i \leftarrow \frac{\left(v_i - \sum_{j \in \mathcal{D}_i} f_{ij}\right) + \sum_{j \in \mathcal{D}_i} e_{ij}}{|\mathcal{D}_i| + 1}$

$k \leftarrow \text{chooseNeighbor}(\mathcal{D}_i);$
 $f_{ik} \leftarrow f_{ik} + (e_i - e_{ik})$
 $e_{ik} \leftarrow e_i$

Unicast

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Simulador





Simulador

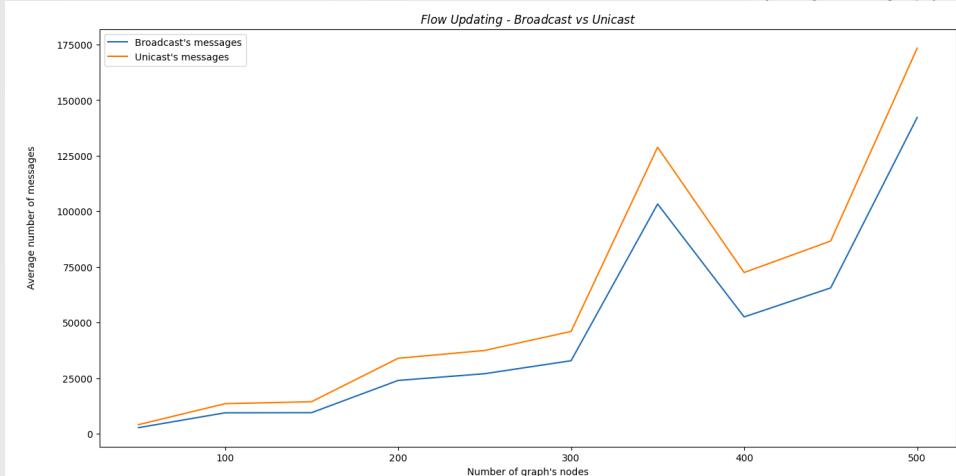
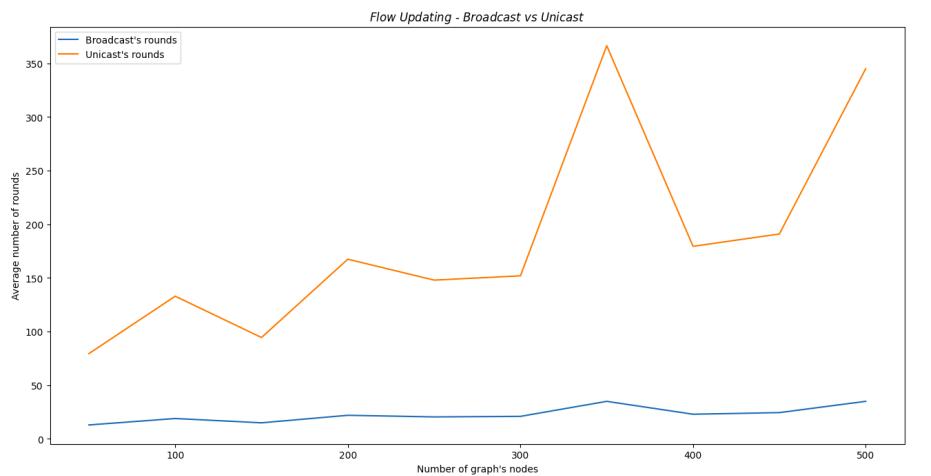


```
0 received INITIAL from None at 0
1 received INITIAL from None at 0
----- 89.5 0.0
1 received ('FLOW', (0, 0)) from 0 at 1
0 received ('FLOW', (0, 0)) from 1 at 1
0 received ('TIMEOUT', 2, True) from 0 at 2
1 received ('TIMEOUT', 2, True) from 1 at 2
----- 89.5 44.75
1 received ('FLOW', (49.5, 49.5)) from 0 at 3
0 received ('FLOW', (40.0, 40.0)) from 1 at 3
0 received ('TIMEOUT', 2, True) from 0 at 4
1 received ('TIMEOUT', 2, True) from 1 at 4
----- 89.5 89.5
```

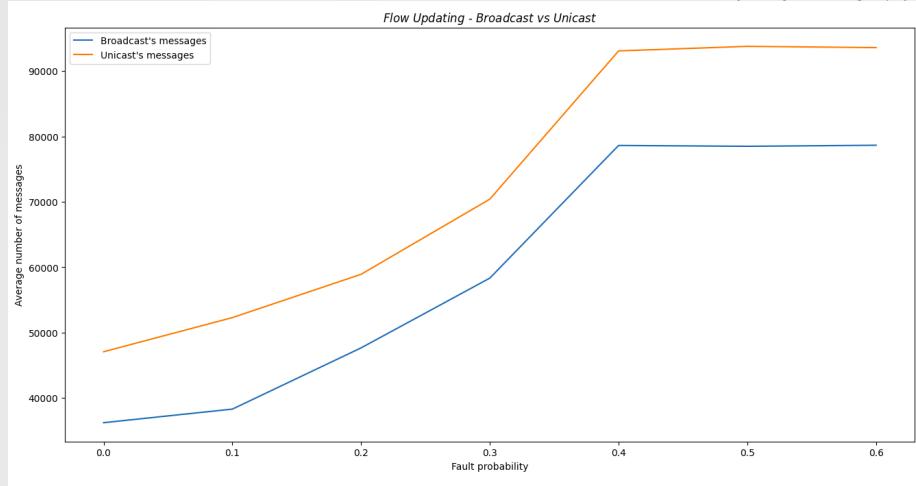
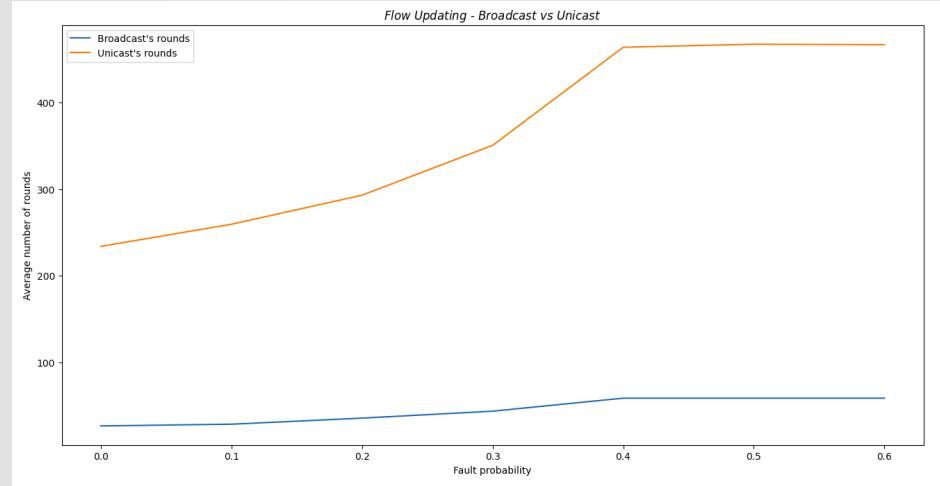
4

Resultados

Resultados



Resultados



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Conclusão



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Bibliografia

- Paulo Jesus, Carlos Baquero e Paulo Almeida. «Fault-Tolerant Aggregation by Flow Updating». Em: jun. de 2009, pp. 73–86. doi: 10.1007/978-3-642-02164-0_6.
- Paulo Jesus, Carlos Baquero e Paulo Almeida. «A Survey of Distributed Data Aggregation Algorithms». Em: Communications Surveys & Tutorials, IEEE 17 (out. de 2011). doi: 10.1109/COMST.2014.2354398. url: <https://arxiv.org/pdf/1110.0725.pdf>.

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Perguntas ?

