

# Individualized Socio-Technical Congruence

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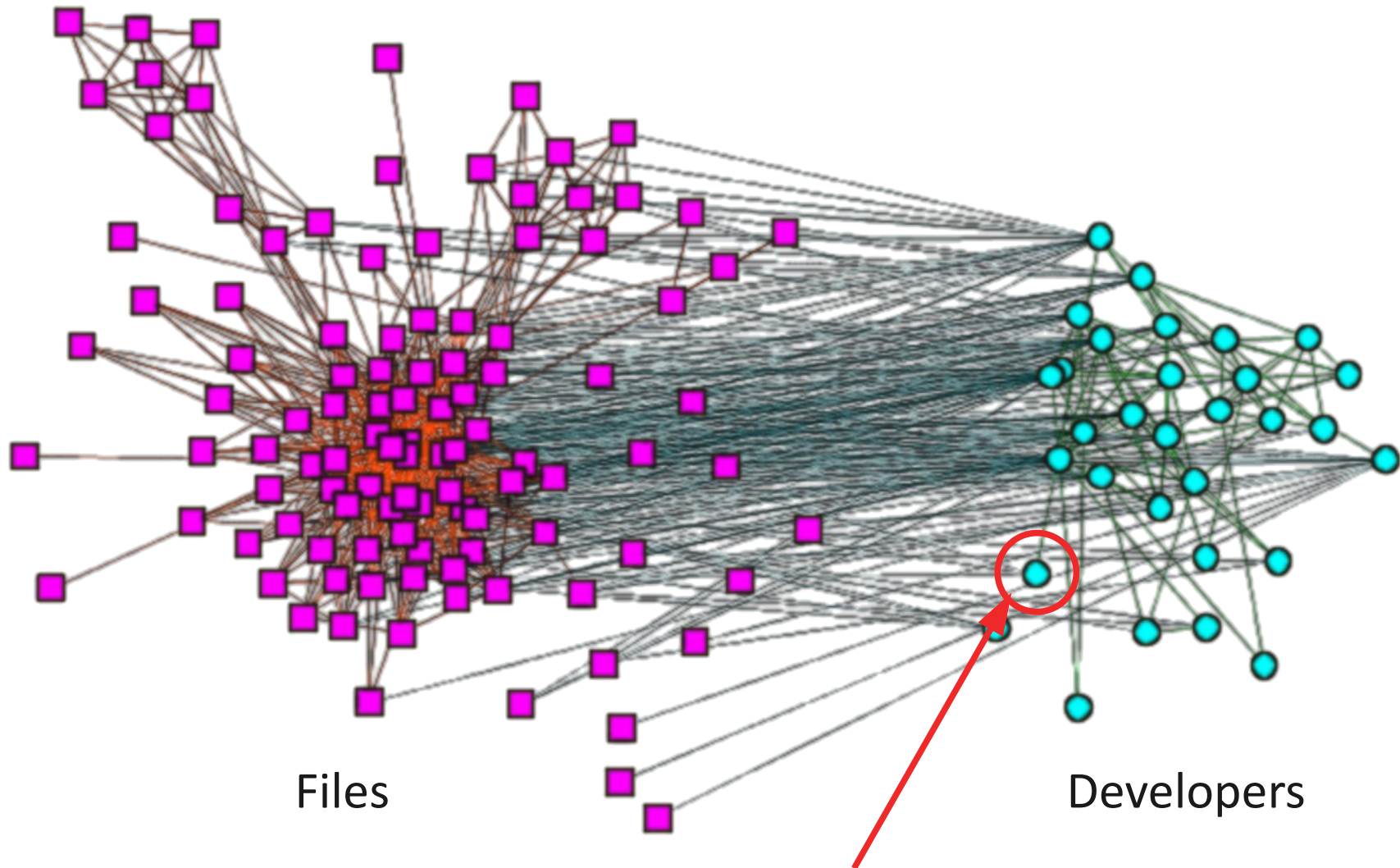
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# The STC Metric

- Takes task dependencies and task assignments to create a network of coordination requirements,  $C_R$
- Measure some sort of actual coordination,  $C_A$
- Then calculate congruence of actual coordination with coordination requirements
- Provides a single metric at the network level
- Shown to be related to high team performance

# The Problem



Files

Developers

What does all this mean for an individual developer?

# Individualized Metrics

$$UIC_i = \frac{\sum (C_R[i,] \times C_A[i,]) + \sum (C_R[,i] \times C_A[,i])}{\sum C_R[i,] + \sum C_R[,i]}$$

$$WIC_i = \frac{\sum (C_R[i,] \times d(C_A[i,])) + \sum (C_R[,i] \times d(C_A[,i]))}{\sum d(C_R[i,]) + \sum d(C_R[,i])}$$

Required Communication

Actual Communication



# Data

- 10 projects within a large open source community
- Looked at bug resolution time for each defect
- Independent variables included individualized congruence for developers on the bugs

# Findings

- High scores on the metrics indicate lower resolution times
- However, more required coordination meant higher performance
- More actual coordination was lower performance
- What does this mean for tool builders?
- Is this an edge case because of open source?