The problem

- No good inter-AS metric in BGP!
- So no easy inbound traffic engineering
  - local pref: local
  - MED: only survives one hop
  - origin: not updated in transit (or usable)
- Only the AS path length
AS path length

- Increases with every hop
- this is what we need
- But: AS hierarchy too flat
- prepending once can move most of your traffic to another link
Inter-AS Cost

- "IAC"
- Conceptually:
  - a metric that is increased at every AS hop
- But:
  - need to be compatible with existing implementations
Solution

- \( IAC_{local} = 16 \times \text{AS\_path\_length} + \text{IAC\_attr} \)
- On eBGP sessions, IAC attribute may be:
  - decremented by up to 14
  - incremented by up to 112
- Net effect: increase of 4 - 256 for every AS hop
- So much more granular than AS path length
Result

• Now:
  • paths over ISPs A and B both 3 hops
  • prepend A: almost all traffic over B

• With IAC:
  • paths over A and B both ± 48
  • IAC - 1 on B: slightly more traffic over B
More compatibility

• Don't want routers to suddenly select completely different paths after update

• solution: multiplier value

• IAC attr * 0 = no effect
• IAC attr * 1 = full effect
• 0..1 = partial effect

• Deploy gradually in existing networks
Deployment

- Optional transitive attribute
- So survives IAC-ignorant AS hops
- Just no increment/decrement
- Existing increment/decrement resurfaces in downstream IAC-supporting ASes
  - so support in the middle isn't necessary
What do you think?