

# Why Power Over Signal Pat

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# Isolation Benefits

- The Discovery Circuit must be isolated, regardless of final determination on power isolation
- Power over signal pairs allows use of existing transformers for isolation
- Power over unused pairs requires additional discovery circuit (or complete discovery circuit in the isolated (zero voltage) domain)

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# Long Term Complexity/Cost

- Power over signal pairs allows easier integration of discovery & power control circuitry onto the PHY
- Decreases system cost by lowering parts count
- Short term may require extra complexity until integrated solutions become available, but the integrated solutions will come quickly
- Mid-Span insertion is more complex, but let's not increase the long term complexity for a stop-gap measure!

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# Compatibility

- Compatible with existing installations
- Looking forward: we need to address any signal quality concerns now anyway if we want to maintain the possibility of 1000BT future compatibility, even if the unused pairs.