Comparison of Contingent Allegiance and Auto Contingent Allegiance

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■ ACA
  - An extension of contingent allegiance which allows SCSI protocols to be implemented on non-interlocked, full-duplex I/O busses.

■ Autosense
  - The automatic return of sense data whenever a command completes with a status of COMMAND TERMINATED or CHECK CONDITION
Why ACA?

- Information flow on non-interlocked bus may be full-duplex.
  - Commands and statuses can be 'in transit' simultaneously.
- On full duplex bus, ACA prevents commands in transit from causing:
  - Loss of Sense Data,
  - Other undesirable side effects.
Bidirectional Data Flow in Interlocked and Non-interlocked, Full Duplex Busses

Interlocked Bus

Non Interlocked, Full Duplex Bus
Contingent Allegiance:
Interlocked Bus,
No autosense

- CA set on successful status transfer
- No more than one command or status 'in transit' at any time.
Contingent Allegiance: No Autosense, Non-Interlocked, Full Duplex bus

- At any time, several commands and statuses may be in transit.
- CA set when status enters pipe.
- Next command received by logical unit automatically clears CA.
- Sense data may be lost.
- Initiator may have to back-out effects of commands sent before the CHECK CONDITION status was detected by the initiator.
Auto Contingent Allegiance: No Autosense, Non-Interlocked, Full Duplex Bus

- Commands in the pipe won't clear the ACA condition.
  - ACA must be explicitly cleared by initiator.
- Sense data is preserved.
  - May be retrieved with ACA command.
  - Next ACA command unconditionally clears sense data.
- Commands terminated with ACA ACTIVE status don't cause logical unit side effects that must be 'backed out'.
Contingent Allegiance: Autosense, Non-Interlocked Bus

- Sense data preserved through delivery to initiator.
- More efficient sense data retrieval.
- Initiator may still have to backout the effects of commands sent before the CHECK CONDITION status was detected.
- CA automatically cleared on return of sense data.
Auto Contingent Allegiance: Autosense, Non-interlocked bus

- Commands in the pipe do not clear ACA.
- More efficient sense data retrieval.
- Commands terminated with ACA ACTIVE status have no logical unit side effects that must be 'backed out'.
- Initiator must still clear ACA explicitly.
## Summary

<table>
<thead>
<tr>
<th>Condition</th>
<th>Condition Cleared by:</th>
<th>Sense Data Cleared by:</th>
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<tbody>
<tr>
<td>Contingent Allegiance</td>
<td>1. Next SCSI Command</td>
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<td>2. Autosense</td>
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<tr>
<td>Auto Contingent Allegiance</td>
<td>1. CLEAR ACA taskmanagement function</td>
<td>1. Next ACA command.</td>
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