

IEC 61850 User Feedback Task Force - Support #555

Link Failover reliability problem - implication to protection application

02/03/2021 02:07 PM - Herbert Falk

Status:	Rejected	Start date:	02/16/2021
Priority:	Normal	Due date:	10/25/2022
Assignee:		% Done:	0%
Category:	Profile or Guideline	Estimated time:	0.00 hour
Target version:			
ID:	2	To discuss in WG10:	No
Source:	H30	Short Proposal:	H30 to provide more details.
TF Unique ID:	2 # H30	Standard(s):	
WG10 Proposal:		Needs More Information:	
Estimated Completion:		Assigned TF:	
Discuss in Upcoming Meeting:	No		

Description

- Failover at link layer – from 2ms to 2 sec.

Link Failover reliability problem –

Solution 1: need for end-end to connection oriented monitoring

Feedback: Can relays monitor end-end link integrity? What existing IEEE 802.x standards? What new network standards – PSCC, ...? Can failover be less than 1ms?

Solution 2: End-end communication path monitoring + centralized network monitoring including relay communication.

FAST switchover to backup protection (within 1 ms).

To define reassessment for other relative parties. To be completed by H30

History

#1 - 02/03/2021 02:34 PM - Herbert Falk

- Status changed from New to Accepted

#2 - 02/15/2021 12:42 PM - Vladan Cvejic

- Subject changed from • Failover at link layer – from 2ms to 2 sec.

Link Failover reliability problem –

Solution 1: need for end-end to connection or to Link Failover reliability problem - implication to protection application

- Category set to Profile or Guideline

- Discuss in Upcoming Meeting set to No

Checking done.

#3 - 02/15/2021 02:26 PM - Carlos Rodriguez del Castillo

- Discuss in Upcoming Meeting changed from No to Yes

#4 - 02/16/2021 04:19 AM - Vladan Cvejic

- Due date set to 08/16/2021

- Status changed from Accepted to Triage

- Start date set to 02/16/2021

- Short Proposal set to H30 to provide more details.

- Discuss in Upcoming Meeting changed from Yes to No

- To discuss in WG10 set to No

H30 to provide more details.

#5 - 12/21/2021 08:55 AM - Carlos Rodriguez del Castillo

With PRP/HSR this should not be an issue, clarify with Dustin

#6 - 02/01/2022 09:36 AM - Carlos Rodriguez del Castillo

2 points:

1. Link status

- Link status could be reported by SNMP protocol (MIB) (IEEE 802.3.1-2013)
- SNMP mandatory in IEDs? It seems too hard
- LCCH LN? ChLiv / RedChLiv
- IEC 62351 is purely security related
- IED or switches should provide a MIB for monitoring purposes
- Herb will check where in the standard IEC 61850-90-4
- IEC 61850-90-22 Autorouting section 4.3.2
- IEC 61850-90-28 Comm supervision

2. Failover mechanism

- IEC 61850 allows HSR, PRP, RSTP as redundancy mechanism. Failover mechanism is described in 90-4.
- Action: Take a look on 90-4 and see if clarification is needed for failover use

#7 - 02/08/2022 02:55 AM - Carlos Rodriguez del Castillo

- To discuss in WG10 changed from No to Yes

On the link failover topic, the ask is:

1. Link Monitoring: WG10 to map MIB (SNMP) to an a new attribute and make it available for monitoring –
 - Minimum requirement is to have HEALTHY/FAIL status but it would helpful to have more detailed information.
 - The expectation is not to make this mandatory at this time but in future
2. Link Failover: WG10 to include in Guide to help users understand:
 - The options available on link monitoring
 - Link-failover options & timelines & architectures
 - HSR/PRP usage & monitoring

There are 2 topics: Link Monitoring and Linkfailover and both of them are not out of scope of 61850 as it is upto the users to decide on implementation based on their priorities. I agree that WG10 Guide can make recommendation on superior practice for PRP & HSR for GOOSE/SV applications but it does not make sense to use HSR/PRP for a metering application which is polled once every hour while link monitoring & link failover still has a use in this application.

#8 - 02/09/2022 09:13 AM - Carlos Rodriguez del Castillo

- To discuss in WG10 changed from Yes to No

- 90-4 only mentions we should not take care about link failover because we have PRP/HSR as redundancy mechanism
- Topic: supervision
 - Use LCCH.ChLiv and RedChLiv to indicate the status of the physical channels
 - 90-4 models SNMP MIB to IEC 61850 LN, maybe it is not complete --> This should be a different issue in redmine
 - 62351-7 maps MIB to 61850
 - We need a detailed use case about SNMP information that needs to be mapped in IEC 61850 or with direction is needed
 - Confirm if we are talking about SNMP mapping to IEC 61850 data model environment
 - There is no request to do something with 90-4
- Topic: standardization
 - You can use link failover transparent to 61850
 - It is out of the scope of the standard
 - IEEE 802.3ad "Link Aggregation" is not the same thing as link failover

Actions:

- If LCCH.ChLiv/RedChLiv is not enough, then we need more information from H30
- Maybe SNMP map to IEC61850 in 90-4 is not enough. We have to create a new issue for this in redmine an provide users information
- To discuss in the plenary:
- 90-4 update
- 90-4/3 data models to 7-4 IS (for edition 3)

#9 - 10/25/2022 08:59 AM - Vladan Cvejic

- Due date changed from 08/16/2021 to 10/25/2022

- Status changed from Triage to Rejected

#10 - 10/25/2022 09:01 AM - Vladan Cvejic

Rejected since PRP and HSR are the standard ways to accomplish this. IEC 61850 is not providing mechanism to achieve this. Application monitoring is already addressed by TF Supervision. Link layer is intentionally abstract to application layer.