

WIS2 Transition Infrastructure

Overview

- Transition infrastructure
- GTStoWIS2 gateway
- WIS2toGTS gateway
- Transition Process

Transition infrastructure

As explained in the WIS2 strategy, the goal is to replace the GTS by WIS2

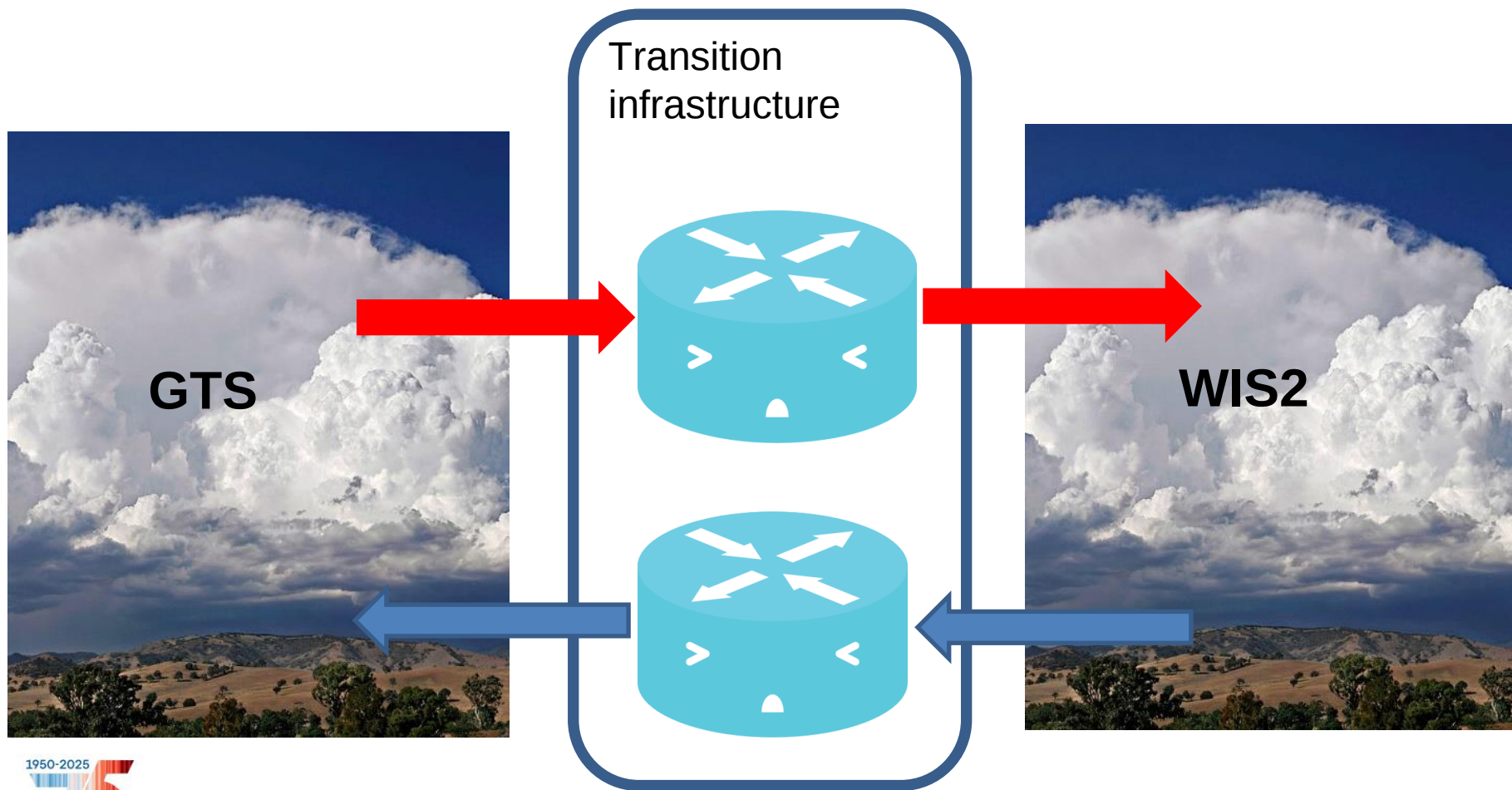
- Replacing here means:
 - Message Switching replaced by MQTT
 - GTS Headers (TTAAii) replaced by WIS Topic Hierarchy
 - WMCP 1.3 replaced by WMCP 2
 - Statically managed routing tables replaced by Subscriptions
 - Store-and-forward of files/bulletins (push) replaced by direct downloads (pull)

WIS2 transition strategy endorsed by Congress 2023

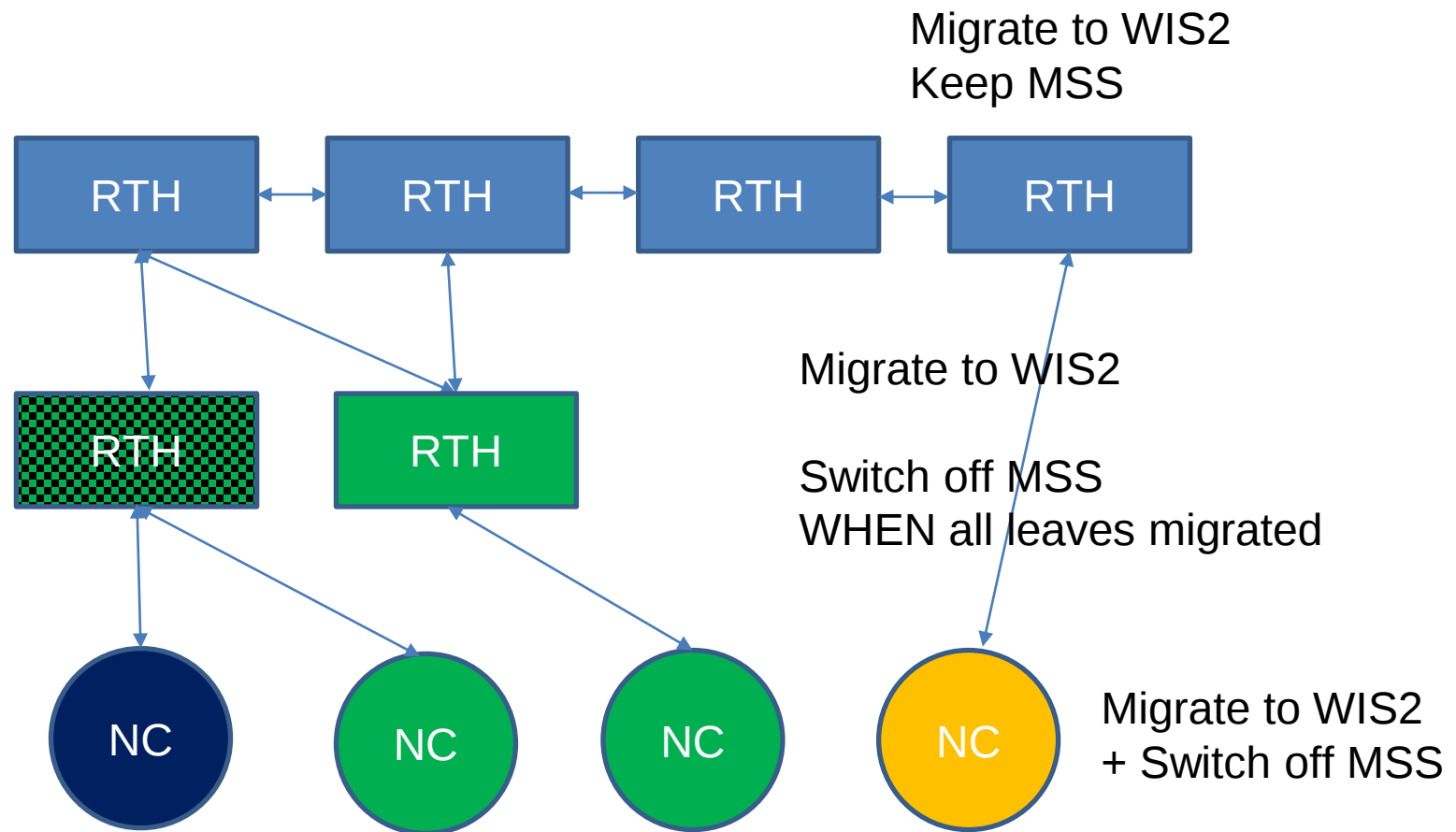
Transition infrastructure

1. Each Center will be able to make the migration during the agreed period (2024-2030) independently
2. After migration, the Center will decide when and if they want to stop their MSS
3. No « GTS » data loss during the migration
 - Data sent on the GTS can be received on WIS2
 - Data, **previously** sent on the GTS, sent on WIS2 can be received on the GTS
4. New data (eg. GBON) will be exchanged **solely** on WIS2
5. **Data exchange with local systems is a task for NCs**
 - Must be able to handle data that are not bulletins and don't have a TTAAii header

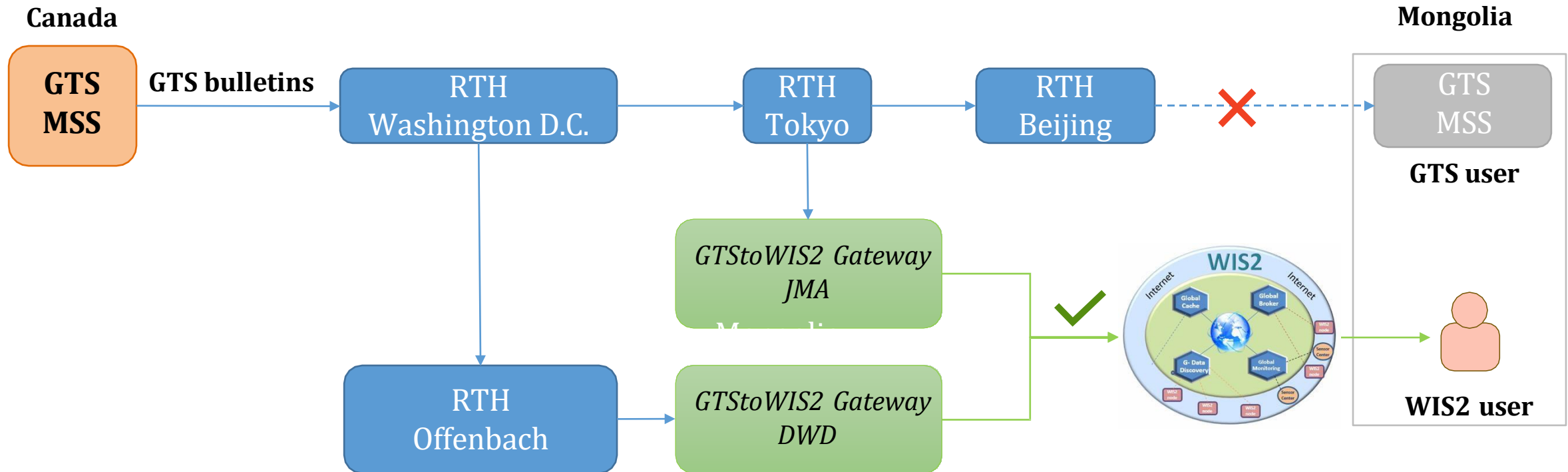
Transition infrastructure



Transition infrastructure



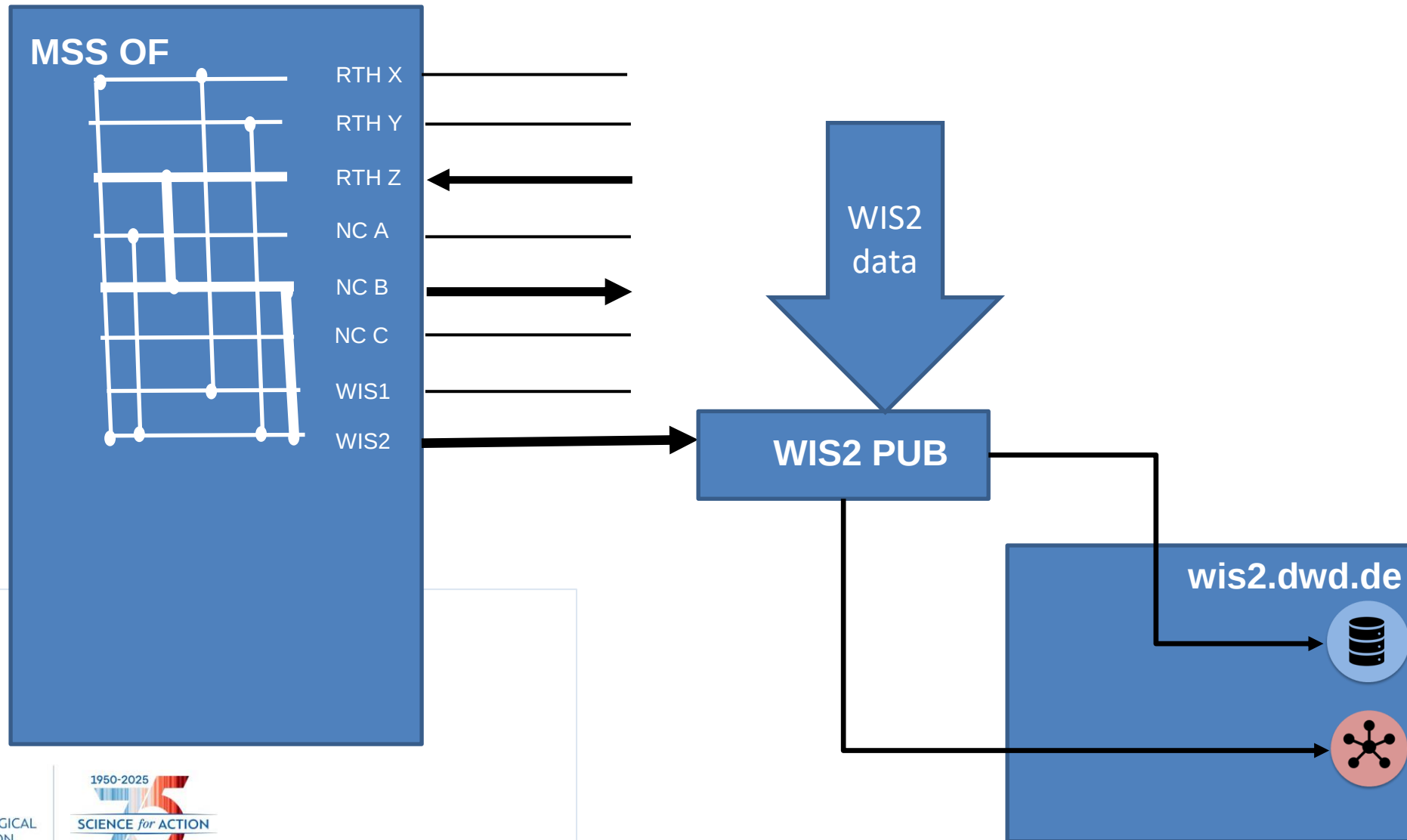
GTStoWIS2 gateway



[origin/a/wis2/de-dwd-gts-to-wis2/data/\[core|recommended\]/T1/T2/A1/A2/ii/CCCC](https://origin/a/wis2/de-dwd-gts-to-wis2/data/[core|recommended]/T1/T2/A1/A2/ii/CCCC)

The purpose of the GTStoWIS2 gateway is to enable members to receive GTS data on WIS2

GTStoWIS2 gateway



GTStoWIS2 gateway

MQTT Explorer

Application Edit View

MQTT Explorer Search...

DISCONNECT

gb.wis.cma.cn

- cache
 - a
 - wis2 (381 topics, 9243 messages)
- origin
 - a
 - wis2
 - de-dwd-gts-to-wis2
 - data
 - recommended (291 topics, 652 messages)
 - core
 - I
 - S
 - M
 - I (1 topic, 2 messages)
 - N
 - 53
 - DAMM = {"id": "7a76f18c-8aeb-11f0-9a65-0242ac1cff29", "conformsTo": ["http://wis.wmo.int/spec/wnm/1/conf/core"], "type": "application/octet-stream", "length": 4683}
 - 35
 - BABJ = {"id": "7aba1a98-8aeb-11f0-9312-0242ac1cff29", "conformsTo": ["http://wis.wmo.int/spec/wnm/1/conf/core"], "type": "application/octet-stream", "length": 4683}
 - 37 (1 topic, 1 message)
 - 01 (1 topic, 1 message)
 - D (1 topic, 1 message)
 - A (9 topics, 11 messages)
 - I (1 topic, 2 messages)
 - G (9 topics, 9 messages)
 - Z (1 topic, 7 messages)
 - U (28 topics, 46 messages)
- S
 - M (9 topics, 9 messages)
 - Z (5 topics, 5 messages)
 - U (2 topics, 2 messages)
 - P (1 topic, 1 message)
- ru-aviamettelecom (1 topic, 1 message)
- ca-eccc-msc (3 topics, 1995 messages)
- jp-jma-gts-to-wis2 (108 topics, 368 messages)
- cn-cma (1 topic, 39 messages)
- hk-hko-swic (1 topic, 5 messages)
- za-weathera (1 topic, 107 messages)
- de-dwd (1 topic, 1 message)
- kr-kma (2 topics, 2 messages)
- us-noaa-nws (2 topics, 9 messages)
- ir-irimo (1 topic, 1 message)
- th-tmd (1 topic, 1 message)
- us-noaa-synoptic (1 topic, 21 messages)

Topic

origin / a / wis2 / de-dwd-gts-to-wis2 / data / core / I / S / M / N / 35 / BABJ

Value

QoS: 0
2025/09/06 14:34:03

```
{
  "value": "S4SQermh+Y5Vh9FVaZdHxN+oBPx9q2571Io0XhgAhaWJcw8DayP4vdSxa17+gbU931siMUvELwZJ09QeNazkZg==",
  "datetime": "2025-09-06T06:00:00Z",
  "links": [
    {
      "href": "https://wis2.dwd.de/gts/babj/A_ISMN358ABJ060600_C_EDZW_20250906063402_73898409",
      "rel": "canonical",
      "type": "application/octet-stream",
      "length": 4683
    }
  ]
}
```

History 1

Publish

Topic

origin/a/wis2/de-dwd-gts-to-wis2/data/core/I/S/M/N/35/BABJ

raw xml json

PUBLISH

GTStoWIS2 gateway

MQTT Explorer

Search...

DISCONNECT

gb.wis.cma.cn

▼ cache

▼ a

▶ wis2 (510 topics, 22888 messages)

▼ origin

▼ a

▼ wis2

▶ de-dwd-gts-to-wis2 (689 topics, 1974 messages)

▶ ru-aviamettelecom (1 topic, 73 messages)

▶ ca-eccc-msc (4 topics, 5034 messages)

▼ jp-jma-gts-to-wis2

▼ data

▶ core (181 topics, 470 messages)

▼ recommended

▼ I

▼ U

▼ A

▼ X

▼ 02

KARP = {"id": "5dfb7003-8277-4a4d-bb20-fa61d098e110", "version": "v04", "type": "application/octet-stream", "length": 13118, "security": {"default": {"type": "http", "scheme": "basic", "description": "Please contact JMA Team for WIS2 Global Cache via wis-jma@met.kishou.go.jp for accessing this secured resource."}}

▶ 07 (1 topic, 1 message)

▶ 03 (1 topic, 1 message)

▶ G (1 topic, 1 message)

▶ P (2 topics, 2 messages)

▶ U (1 topic, 62 messages)

▶ S (1 topic, 1 message)

▶ cn-cma (1 topic, 77 messages)

▶ hk-hko-swic (1 topic, 6 messages)

▶ za-weatherza (1 topic, 107 messages)

▶ de-dwd (1 topic, 2 messages)

▶ kr-kma (2 topics, 3 messages)

▶ us-noaa-nws (2 topics, 11 messages)

▶ ir-irimo (1 topic, 1 message)

▶ th-tmd (1 topic, 1 message)

▶ us-noaa-synoptic (1 topic, 21 messages)

▶ sg-mss (1 topic, 1 message)

▶ in-imd (1 topic, 1 message)

▶ nz-metservice (1 topic, 2 messages)

▶ dz-meteoalgerie (1 topic, 24 messages)

▶ cy-dom (1 topic, 1 message)

Topic

origin / a / wis2 / jp-jma-gts-to-wis2 / data / recommended / I / U / A / X / 02 / KARP

Value

<> ☰

```
~ {"type": "application/octet-stream",
  "length": 13118,
  "security": {
    "default": {
      "type": "http",
      "scheme": "basic",
      "description": "Please contact JMA Team for WIS2 Global Cache via wis-jma@met.kishou.go.jp for accessing this secured resource."
    }
  }
}
```

QoS: 0
2025/09/06 14:34:30

History 4

Publish

Topic

origin/a/wis2/jp-jma-gts-to-wis2/data/recommended/I/U/A/X/02/KARP

raw xml json

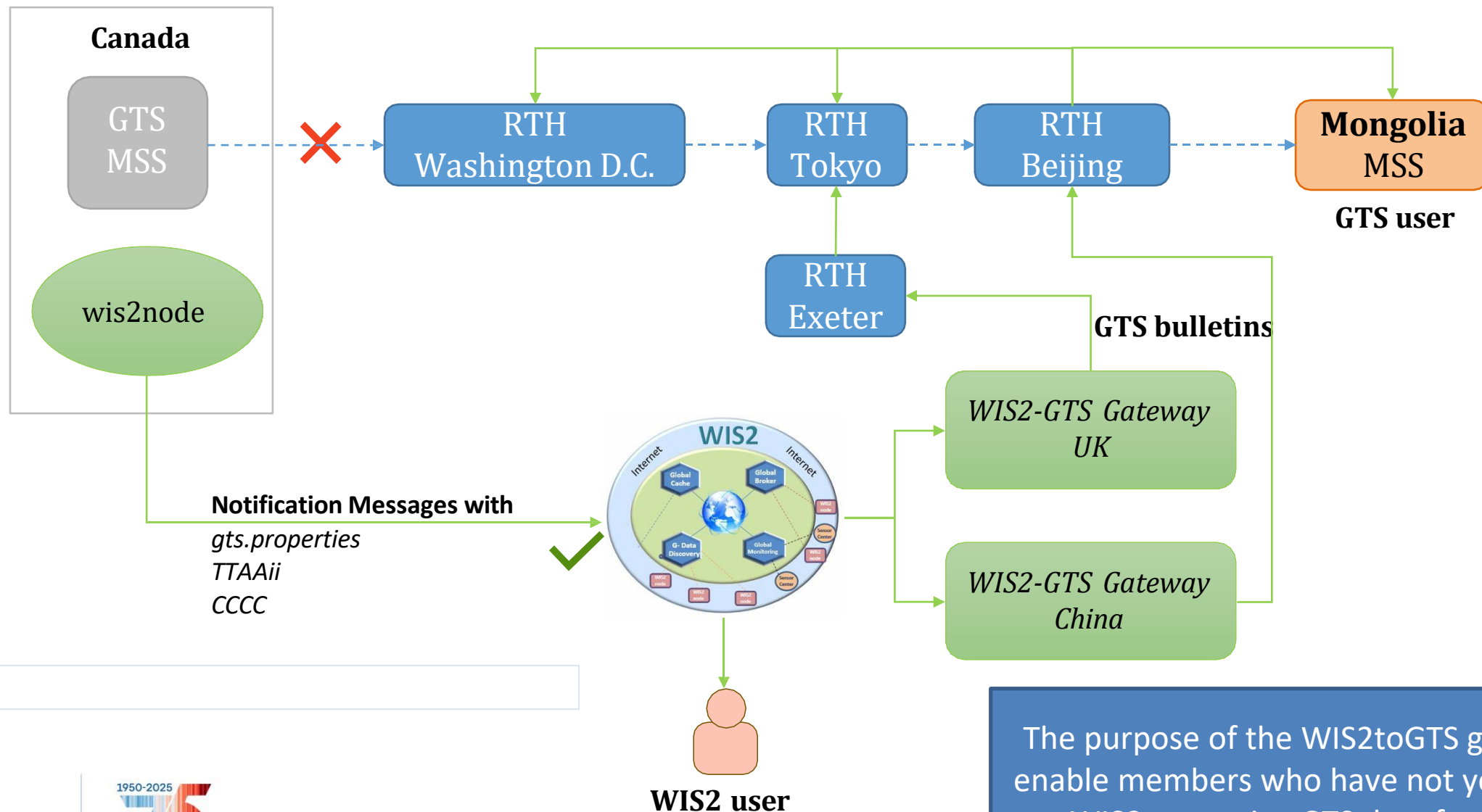
☐ ☐ ☒

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☐ ☐ ☒

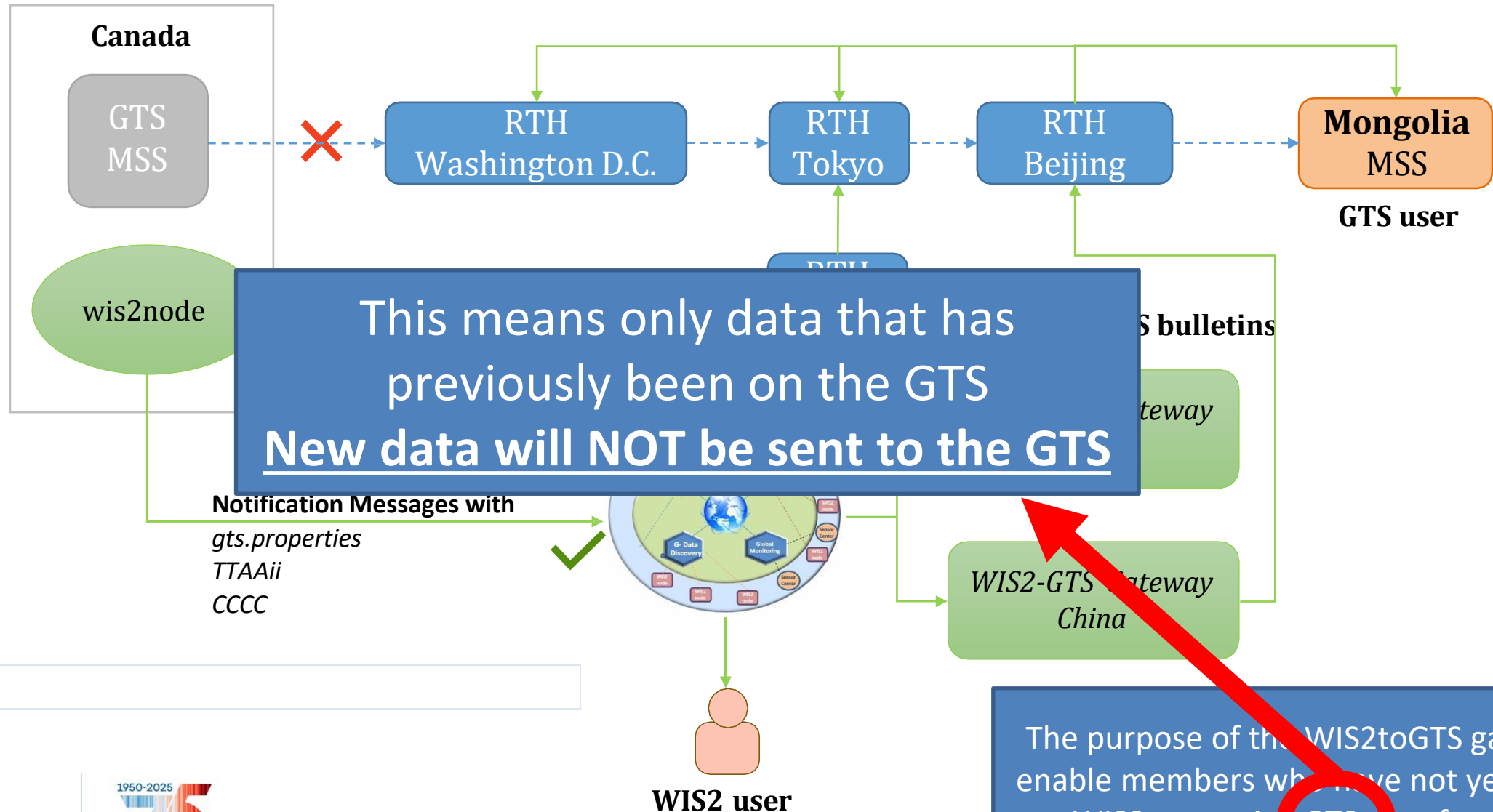
PUBLISH

WIS2toGTS gateway



The purpose of the WIS2toGTS gateway is to enable members who have not yet connected to WIS2 to receive GTS data from members who already have migrated

WIS2toGTS gateway



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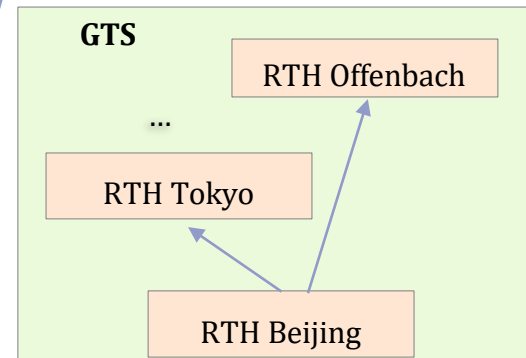
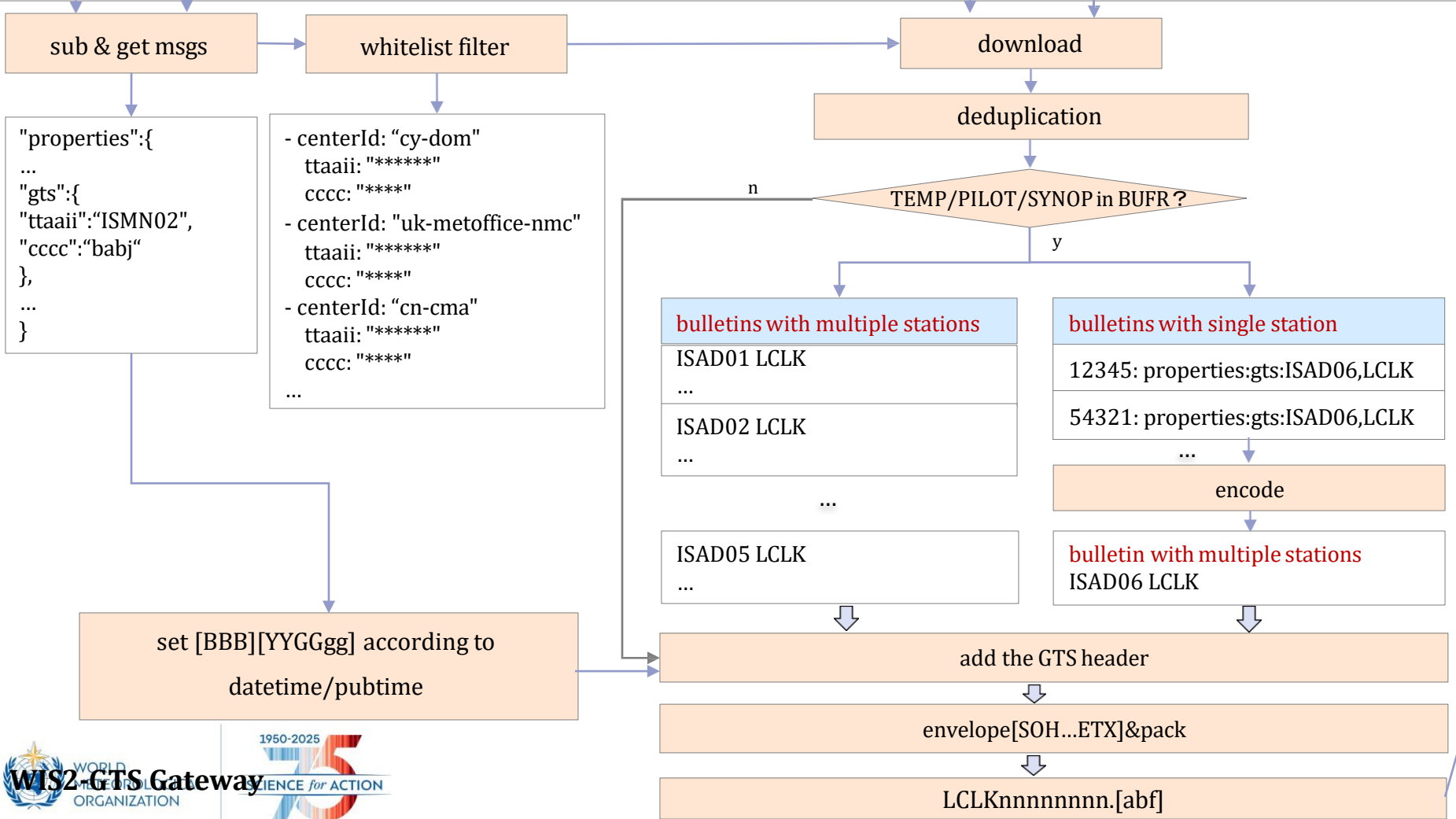
WIS2toGTS gateway

GB France GB China

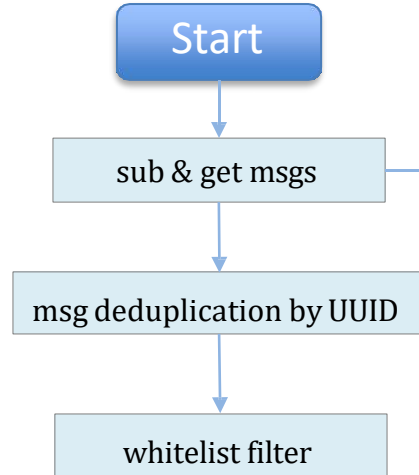
core

recommended

2 server
(primary/backup)



WIS2toGTS gateway



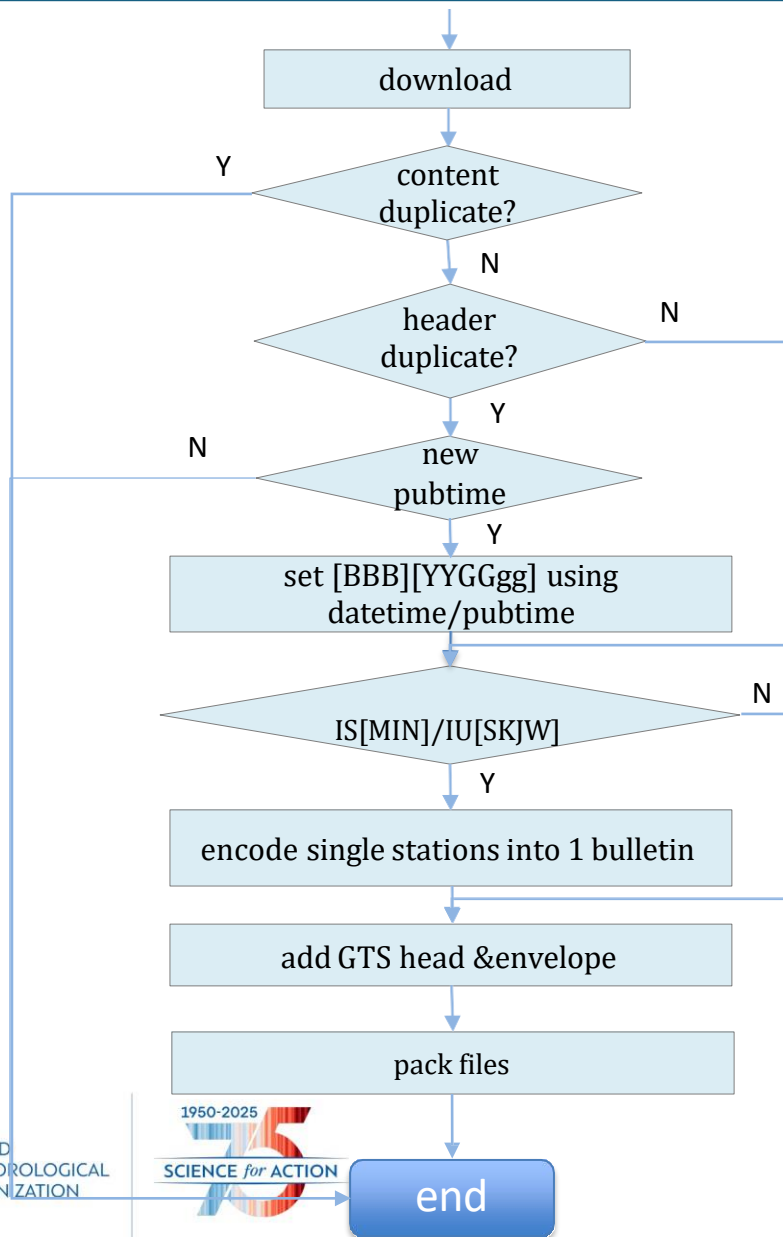
- **centerId:** "cy-dom"
ttaaia: "ISAD59"
cccc: "LCLK"
- **centerId:** "uk-metoffice-nmc "
ttaaia: "*****"
cccc: "EGRR"
- **centerId:** "sa-ncm"
ttaaia: "IS*D*"
cccc: "*****"
- **centerId:** "cg-met"
ttaaia: " SICG20"
cccc: "*****"
- **centerId:** "cg-met"
ttaaia: " SMCG20"
cccc: "*****"

```
{
  "id": "4b1ff663-69e1-4d07-ae5e-cb1cec796dc2",
  "version": "v04",
  "type": "Feature",
  "geometry": null,
  "properties": {
    "pubtime": "2025-02-21T05:37:03.853Z",
    "datetime": "2025-02-21T05:37:00.809Z",
    "integrity": {
      "method": "sha3-512",
      "value": "KwbRgYiftJv3GHptjTT5vQ8v6j4QDUBvveEzKKgT8/KuYsr00YgA0dOKLE4z/YGssAymaVNXoI49WNMTYVe5Ng=="
    },
    "data_id": "data/core/weather/surface-based-observations/synop/A_ISAD59LCLK210530_C_LCNC_20250221053700",
    "metadata_id": "urn:wmo:md:cy-dom:surface-based-observations.synop",
    "cache": true,
    "gts": {
      "ttaaia": "ISAD59",
      "cccc": "LCLK"
    }
  },
  "links": [
    {
      "href": "https://www.dom.org.cy/wis2/data/core/weather/surface-based-observations/synop/A_ISAD59LCLK210530_C_LCNC_20250221053700",
      "rel": "canonical",
      "type": "application/x-bufr",
      "length": 15400
    }
  ]
}
```

center-id: cy-dom
TAAii: ISAD59
CCCC: LCLK

both exact matches and
wildcards are supported

WIS2toGTS gateway



BUFR file: ISAD59 LCLK 210530 (no GTS header and envelop)

A_ISAD59LCLK210530_C_LCNC_20250221053700

```

00000000h: 42 55 46 52 00 3C 28 04 00 00 16 00 00 E6 00 00 ; BUFR.<{.....?.
00000010h: 00 00 00 07 FF 1F 00 07 E9 02 15 05 1E 00 00 00 ; .... ..?......
00000020h: 09 00 00 34 80 C7 5C 00 3B FD 00 00 0C 40 00 03 ; ...4€药.;?...0..
00000030h: 03 13 43 63 62 02 02 02 02 02 02 02 02 02 0F ; ..Ccb.....
00000040h: FF FA 32 0A 92 6A 0A 5A 0A 99 01 01 01 01 01 ; ?.药.Z.?......
  
```

pack bulletins into LCLK00519263.b(add GTS header and envelop)

LCLK00519263.b

```

00000000h: 30 30 30 31 35 34 33 37 30 30 01 0D 0D 0A 37 34 ; 0001543700...74
00000010h: 36 36 38 0D 0D 0A 49 53 41 44 35 39 20 4C 43 4C ; 668...ISAD59 LCL
00000020h: 4B 20 32 31 30 35 33 37 0D 0D 0A 42 55 46 52 00 ; K 210537...BUFR.
00000030h: 3C 28 04 00 00 16 00 00 E6 00 00 00 00 00 07 FF ; <{.....?......
00000040h: 1F 00 07 E9 02 15 05 1E 00 00 00 09 00 00 34 80 ; ...?......4€
  
```

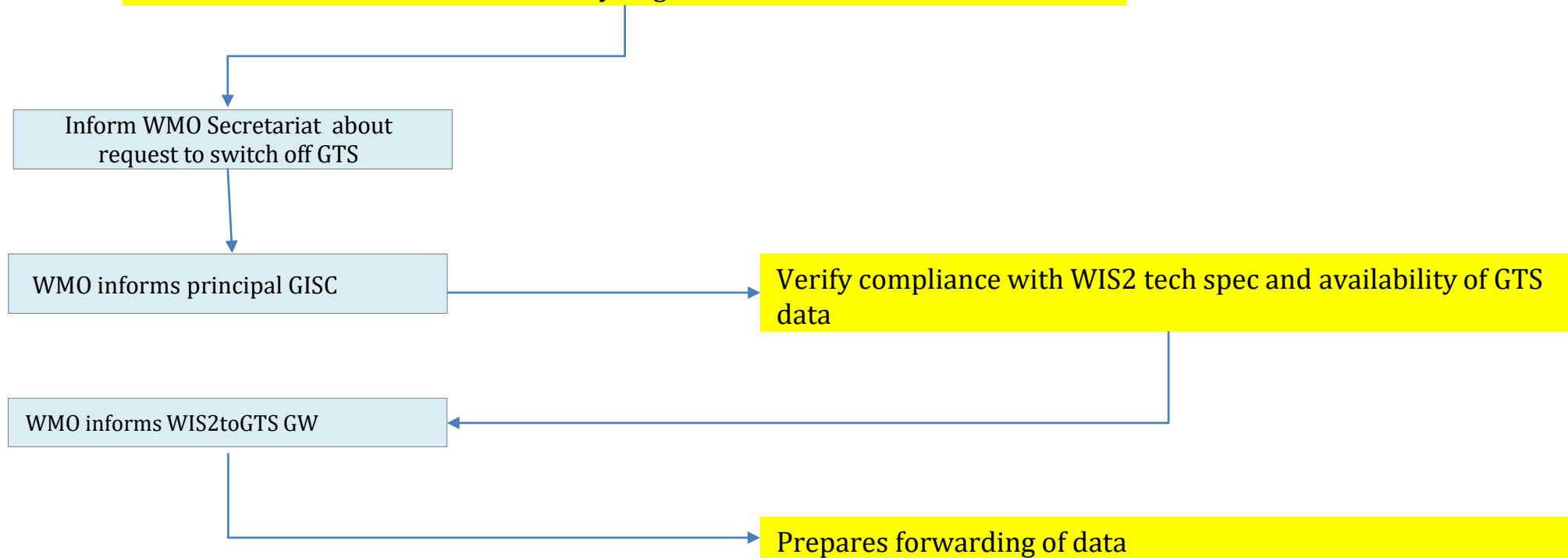
Packing rules:

- ✓ Max file size : 1M
- ✓ Max bulletin number in a file : 100
- ✓ Packing frequency: 60 seconds

Transition process

Prerequisite:

1. Implemented WIS2 Node
2. (Previous) GTS data is available as dataset on WIS2
3. WIS2 Node fully integrated in centers operation (data in + out)
4. For RTHs: All leave nodes already migrated to WIS2



Transition process

| Centrer | Gateway | GISC |
|----------------|---------------------|-----------------------|
| Agree date | Agree date | Agree date |
| | Activate forwarding | Verify data reception |
| | | Verify data reception |
| Deactivate GTS | | Verify data reception |
| | | Verify data reception |
| Done | Done | Done |



WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Thank you
Merci
Gracias
ارکشی
谢谢
Спасибо