Voice Compression and Network Optimization

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Voice Compression Phase 2

- Activities
  - Reviewed the time slot and bandwidth allocations for the mission channelized T1s
  - Consulted AT&T for their recommendation

Current voice configuration

- All voice loops compressed to 24 kbps except for TV Conf, A/G and 3 media support loops between JSC and MSFC
  - TV Conf
    - Tones used to switch the transponder uplink did not work reliably at 24 kbps
  - A/G
    - Not changed due to tone keying and criticality
  - Media support loops between JSC and MSFC
    - Loops do not terminate in mission voice switches or operations area
- Performance acceptable for all compressed voice conferences

Optimization Analysis

- Goals
  - Maintain reroute capability within AT&T network
  - Every NASA site with mission requirements must have at least two mission circuits
  - 80% utilization per T1 recommended by SIT team
  - Examined all channelized T1s in the mission network

Optimization Study Results

- 38 T1s have more than 80% of the timeslots assigned as active channels
  - T1 comprised of 24 time slots
  - 80% mark = 19.2 time slots
- Number of T1s over 80% has decreased as a result of voice compression
- Some sites may be able to fit additional services within existing bandwidth at incremental project cost
- Identified some pairs of sites that will require new circuits to provide additional mission services – such as GSFC/Wallops
- Moving channels between T1s to achieve less than 80% on all T1s between sites not recommended because time slot utilization remains the same

T1s over 80% as of July 2002

T-1 NUMBER	SOURCE SITE	DESTIN. SITE	T/S USED
DHEM-956906	GDS	LITT	23.50
DHEM-956595	GSFC	WLP	22.00
DHEM-956638	GSFC	BERK	20.50
DHEM-956639	GSFC	LARC	20.50
DHEM-956776	GSFC	LNHM	23.50
DHEM-956637	GSFC	PFLT	22.00
DHEM-956716	GSFC	PFLT	21.50
DHEM-956854	GSFC	SFAL	22.50
DHEM-956720	GSFC	SUIT	24.00
DHEM-956757	GSFC	SUIT	22.50
DHEM-792026	GSFC	TRW	20.50
DHEM-956601	GSFC	TRW	19.50
DHEM-956636	GSFC	WLP	23.50
DHEM-956772	JPL	GDS	21.50
DHEM-956736	JPL	ALTD	23.50
DHEM-956695	JPL	ASU	23.50
DHEM-956641	JPL	LITT	24.00
DHEM-956574	JSC	GSFC	20.00
DHEM-956575	JSC	GSFC	20.00

T-1 NUMBER	SOURCE SITE	DESTIN. SITE	T/S USED
DHEM-791895	KSC	JPL	23.50
DHEM-791896	KSC	JPL	22.50
DHEM-956635	KSC	JPL	22.50
DHEM-956628	KSC	MSFC	23.00
DHEM-956629	KSC	MSFC	23.00
DHEM-9066ATT	GSFC	WLP	19.50
DHEM-9059ATT	GSFC	KSC	22.50
DHEM-9054ATT	JSC	KSC	21.50
DHEM-9056ATT	JSC	GSFC	21.00
DHEM-792077	GSFC	APL	22.50
DHEM-956680	GSFC	APL	19.50
DHEM-956655	GSFC	JPL	19.50
DHEM-791920	GSFC	LMMS	22.00
DHEM-956745	GSFC	OAFB	24.00
DHEM-956905	JPL	GDS	24.00
DHEM-791939	JPL	GSFC	23.50
DHEM-956857	JPL	OAFB	24.00
DHEM-956867	JPL	TRW	19.00
DHEM-792081	KSC	APL	22.50

Recommendation

- Turn down MSFC/DACS DHEM957733
  - Move AREM792032 and AREM956748 onto MSFC DHEM875351
  - Will provide AT&T network access for these channels