Other ANSS Software

- **EIDS (Earthquake Information Distribution System)**
- **QuakeXML and StationXML**
- **SeisNetWatch**
- **INV (Inventory Control System)**
- **ENS (Earthquake Notification System)**
- **CISNDisplay**
- **NoisePDF**
- **MetaData Server(s) (station, FE region, nearest cities, Qfaults)**
- **ShakeMap, ShakeCast, PAGER**

Performance Area	Metric (explanations below)	Units	Performance Standard: Hi-Risk Urban Areas	Mod-High Hazard Areas	National	Global
Seismic Monitoring/Strong Earthquake Shaking						
1.1	Magnitude Completeness Level	M	2.0	2.5	3.0	4.5
1.2	Epicenter Uncertainty	km	2	5	10	20
1.3	Depth Uncertainty	km	4	10	10	20
1.4	Magnitude Uncertainty for M≥ 4.5	M	±0.2			
1.5	Magnitude Estimation Accuracy (Md, Ml, Mo, Mb) for M<4.5	M	to be determined			NA
1.6	Network average station uptime	%	90			
1.7	Waveform Data Return Rate for Triggered data	%	95			NA
Real-Time/Automated Product Generation						
2.1	Hypocenter Post Time	min.	2	4	6	15
2.2	Magnitude Post Time	min.	3	4	6	15
2.3	Moment Tensor Post Time M≥4.5 (M≥5.5 non-US)	min.	15			30
2.4	Initial *Internet Quick Report* Post Time M≥3.5	min.	15	15	30	NA
2.5	*ShakeMap* Post Time	min.	5	10	15	20
Preparation of Seismologist-Reviewed Products for Significant Earthquakes						
3.1	Reviewed Hypocenter Post Time	min.	10			20
3.2	Reviewed Magnitude Post Time	min.	10			20
3.3	Reviewed Moment Tensor Post Time M≥4.5 (M≥5.5 non-US)	min.	30			
3.4	Reviewed *Internet Quick Report* Post Time	min.	30	45	60	NA
3.5	Reviewed *ShakeMap* Post Time	min.	15	30	30	60
Data Exchange Between ANSS Networks						
4.1	Waveform Availability Timeliness	sec.	30		60	
4.2	Amplitude Availability Timeliness	sec.	30		60	
4.3	Phase Picks Availability Timeliness	sec.	30		60	
Data Archiving and Public Distribution						
5.1	Availability of Waveforms to External Users	min.	60			
5.2	Availability of Event Bulletin (parametric data)	min.	60			120
5.3	Metadata availability (current)	%	99			
5.4	Data import into archive	min.	to be determined			

Measuring Ourselves Against the ANSS Performance Standards

Motivation

It will take time and effort to develop the policy and procedures that will be used to objectively and uniformly measure ourselves against a standard

Starting now on some of the standards will make it easier to rollout CISN software and encourage adoption of new and emerging software systems like INV and NoisePDF

Developing measurement standards and evaluating ourselves against the standard will help with regional planning and implementation of ANSS

Strawman Standards to Measure

- Audit of station metadata based on noise PDF measurements
  - Accurate metadata needed for rollout of CISN software and archival of data at an ANSS designated archive
- Reporting of waveform completeness
  - ANSS Backbone, GSN and TA Stations are measured
- Tabulating time to delivery of automatic and reviewed event solutions