1. 5G: LTE-A speed and latency. LTE-M and NB-IoT. Number of connected devices. LTE-M for critical applications. Long battery life for both these technologies. These technologies will help connect the IoT Devices to the Cellular Networks.
2. 5G Architecture: User Entity, Radio Access Network and the Core. The Radio Access Network sends the data to the Core which has OSS that lies complementary to it. Based on this, the processing is done on the OSS.
3. Cloud RAN: In Radio Access Network, we used Macro Cells. In 5G, we will move towards Small Cells. The computing requirement for all these cells will be high, so for more efficiency, we have a CRAN. A CRAN is a collection of basebands with distributed processing. Each CRAN has a server which is powerful enough to run Ubuntu Operating System. The processing is distributed so that we can add more small cells on to the CRAN. This is gaining momentum as we move away from the individual basebands today.
4. Machine Learning: The Core gets the data from multiple CRAN. This data is then sent to the OSS which lies complementary to the Core. Here, we solve many types of problems, such as Cell Load, Interference, Coverage, Capacity, Mobility, etc. which were all traditionally solved manually.
5. Interference: It is anything that modifies or disrupts a signal as it travels along a channel between a source and a receiver. One way to solve this problem is through Beamforming, something Nokia is trying using Neural Networks. Since they are unable to perform this on the Edge, they are doing it offline and pushing it on to the Edge.
6. Rise of 5G: 5G will be used right until the 2040s. The number of devices will be 28 times on Cellular Network as what they are now in the next 2-3 years. The number of Small Cells will increase because of the demand. The Computational Complexity will not keep up with this rising demand for new RRUs, which will cause an increase of load on the OSS. To avoid this, we would send the processing on to the CRAN which would give us a Distributed Computing Efficiency and we can perform analytics on this. The analytics would be real-time and more accurate. This will also help with Private Networks with many companies demanding their own Private Radios.