The complex source point (CSP) method is applied to the method of moments prediction of radar scattering from complex geometries. Like the fast multipole method, the CSP method breaks up the geometry into groups of basis functions. The interactions between groups are computed using a CSP expansion that gives rise to Gaussian beam-like functions which are spectrally narrow. A small percentage of the beams are responsible for the interactions between each pair of separated groups. The CSP method is being investigated to accelerate the asymptotic phasefront extraction (APEx) algorithm. Also investigated is a cross-range imaging approach that uses swept-frequency data at a single aspect angle to obtain the cross-range locations of the first order scattering centers. Such an approach is very beneficial because APEx and other numerical methods are inefficient for predicting backscatter patterns for multiple aspect angles.